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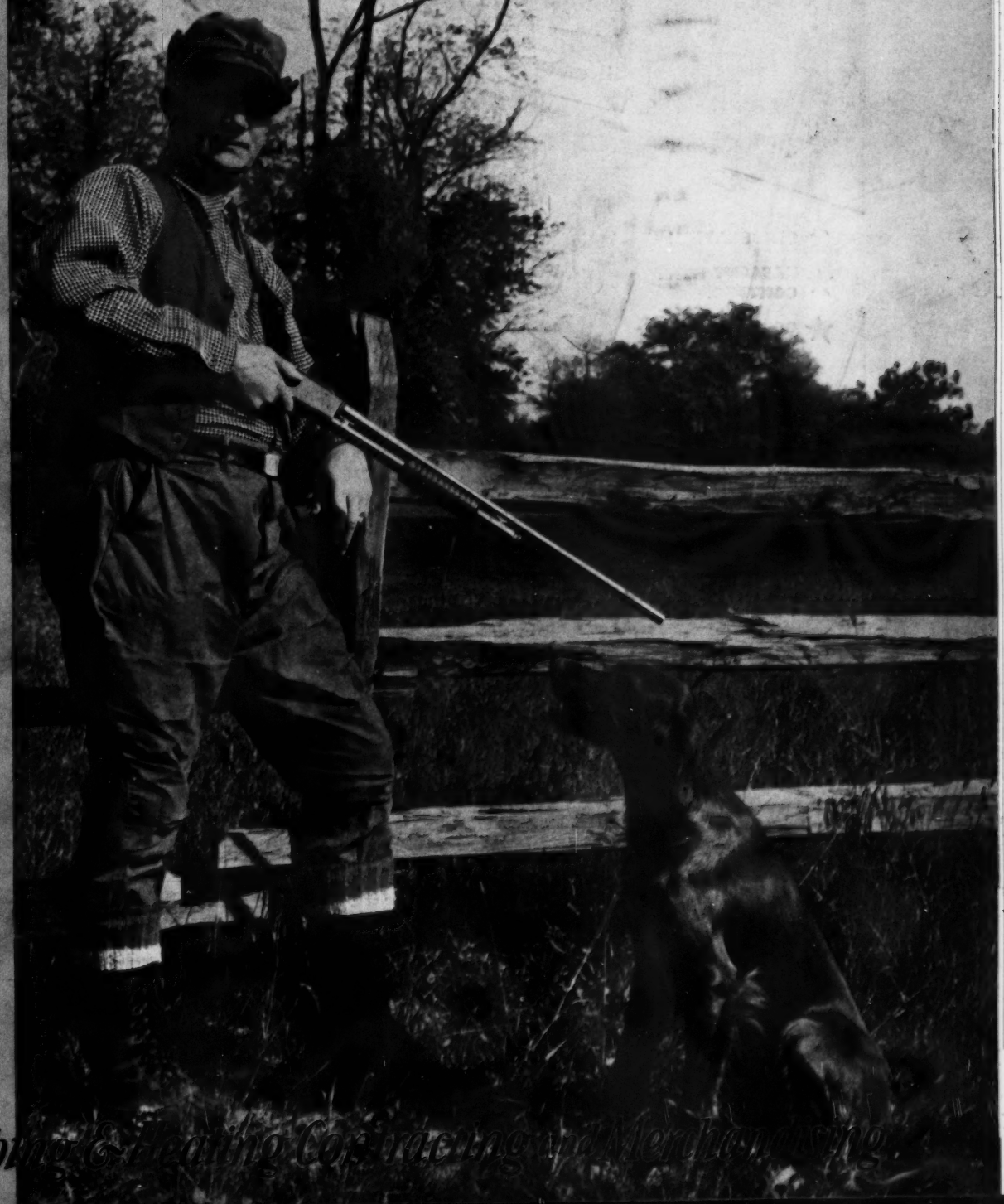
DOMESTIC ENGINEERING



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OVEMBER
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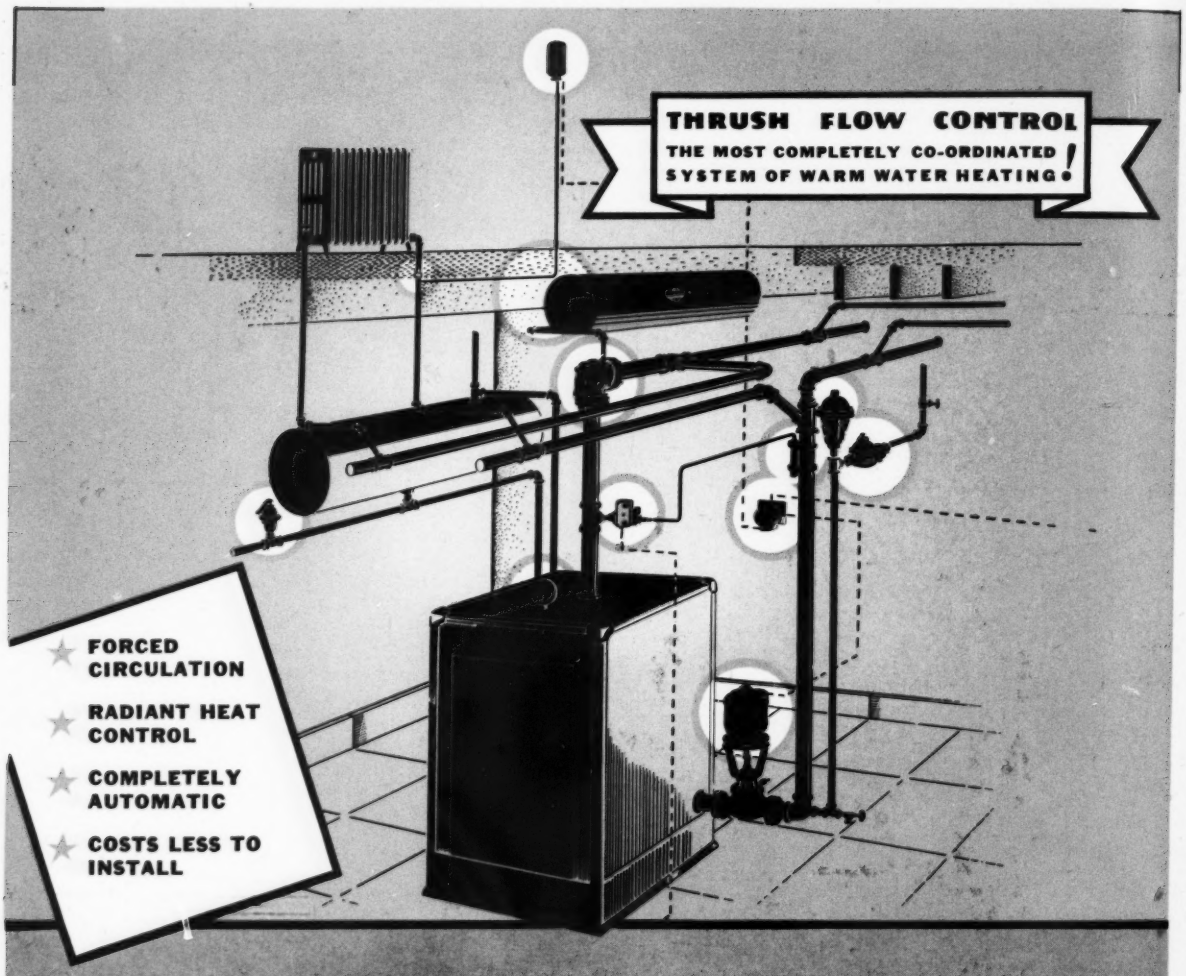
Plumbing & Heating Contracting and Merchandising



YOU MAKE MORE MONEY WITH LESS LABOR AND YOUR CUSTOMERS GET A BETTER HEATING PLANT AT LESS COST WHEN THRUSH FLOW CONTROL SYSTEM IS USED

MAIL THIS

H. A. THRUSH & CO. • Box 459 • PERU, INDIANA

Please tell us more about Thrush Flow Control System.

NAME_____

ADDRESS_____

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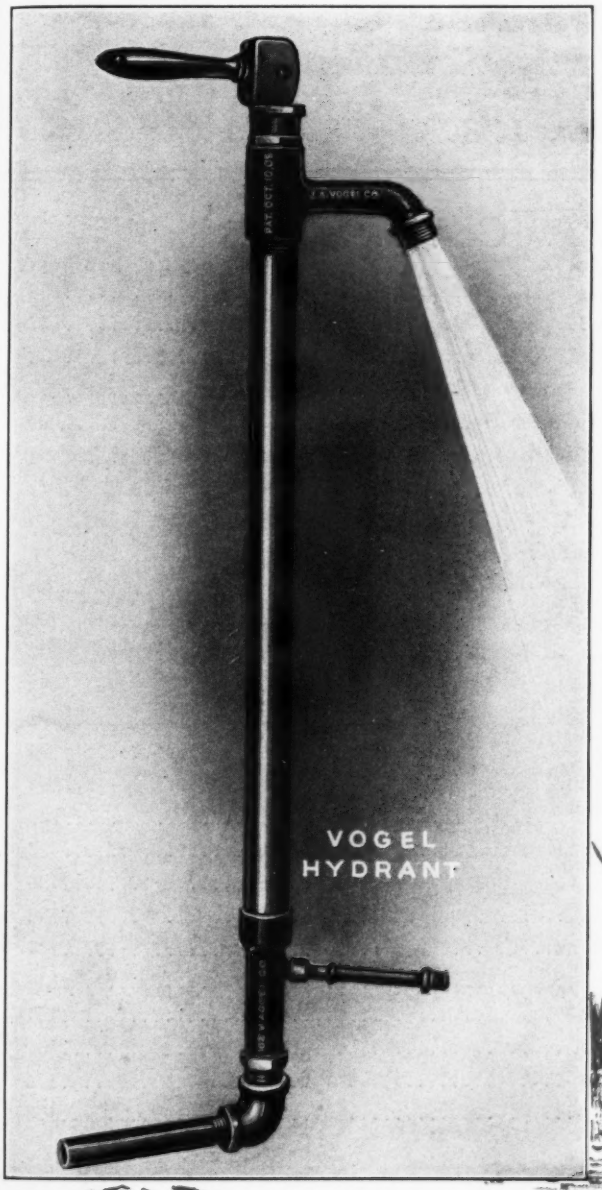
For a dependable supply of running water



IN ALL KINDS OF WEATHER...

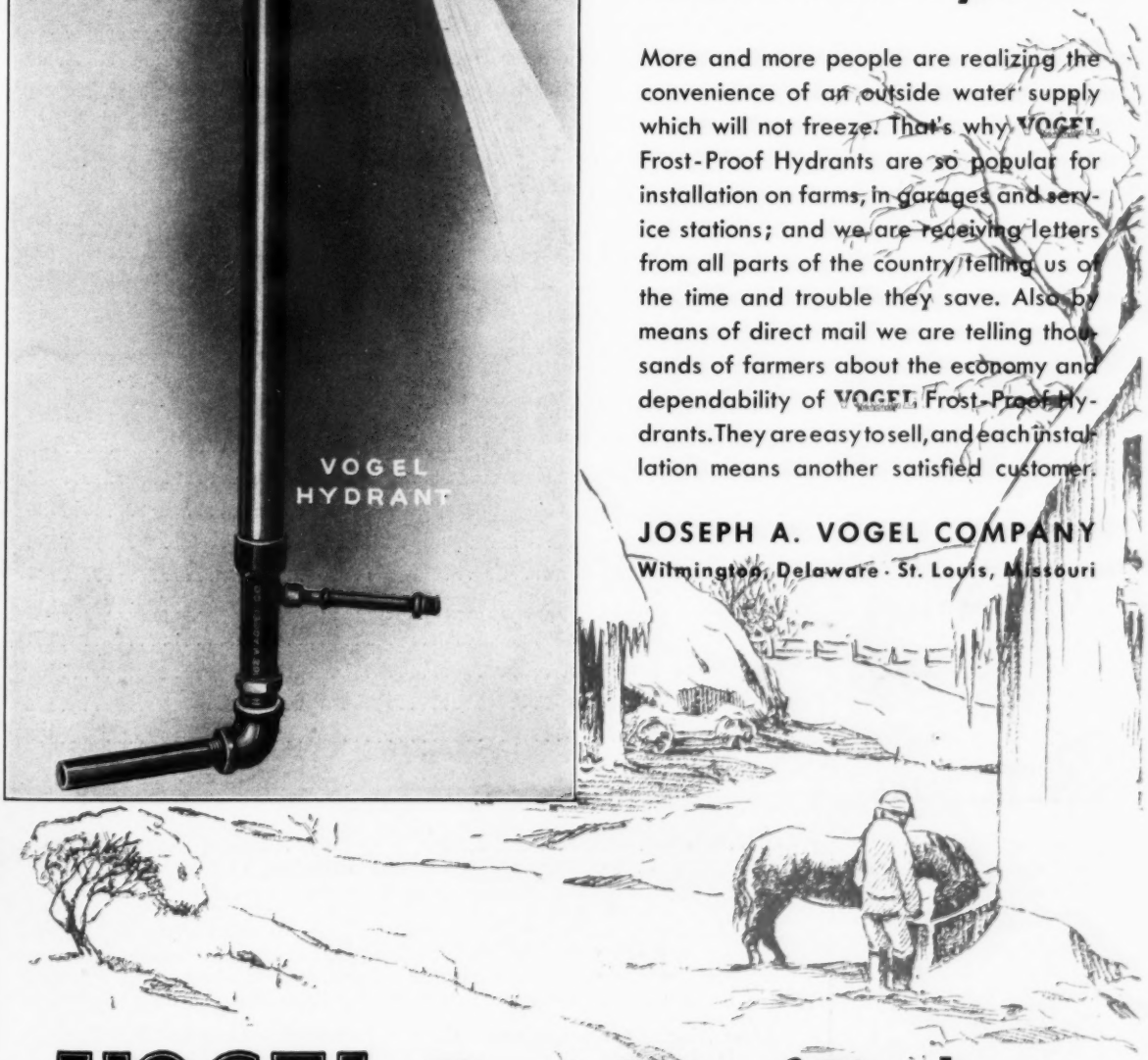
install a

VOGEL
PATENTED

Frost-Proof Hydrant

More and more people are realizing the convenience of an outside water supply which will not freeze. That's why VOGEL Frost-Proof Hydrants are so popular for installation on farms, in garages and service stations; and we are receiving letters from all parts of the country telling us of the time and trouble they save. Also by means of direct mail we are telling thousands of farmers about the economy and dependability of VOGEL Frost-Proof Hydrants. They are easy to sell, and each installation means another satisfied customer.

JOSEPH A. VOGEL COMPANY
Wilmington, Delaware · St. Louis, Missouri



VOGEL PATENTED *Frost-Proof* **Products**

DOMESTIC ENGINEERING

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November, 1937

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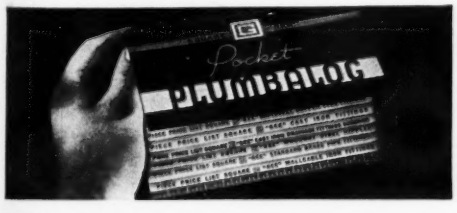
for time-wasting grief

★ Fittings that really fit . . . that make jobs hum with activity . . . that go into place like clockwork . . . that's what licks time-wasting grief. Square "GEES" are the kind of fittings journeymen like to work with . . . that assure faultless installation right off the reel. Square "GEE" fittings and unions are right up to snuff . . . always! Threads, clean cut and accurate. They save time, temper and money . . . are as uniform as the ticking of a clock. Order Square "GEE" fittings and unions by name from your wholesaler . . . do it always!



It's Free! – to plumbing and heating contractors . . . to their journeymen. The Square "GEE" Plumbalog! . . . the pocket-size mechanical handbook that cuts out guess-work . . . gives ready reference answers . . . quick solutions . . . to scores of installation and estimating problems. Write for your Plumbalog . . . TODAY. Get a copy for your mechanics.

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THE SQUARE "GEE" LINE INCLUDES: STANDARD AND EXTRA HEAVY MALLEABLE FITTINGS • STANDARD AND GROUND JOINT UNIONS • RAIL FITTINGS • STANDARD CAST IRON STEAM AND DRAINAGE FITTINGS PATENTED FITTINGS • STANDARD AND EXTRA HEAVY BRASS FITTINGS • BRASS UNIONS • STEEL AND BRASS NIPPLES • HANGERS • FLOOR AND CEILING PLATES RAPIDSEAL COPPER TUBE SOLDER TYPE FITTINGS

SQUARE Pipe

"GEE" Fittings

MALLEABLE, CAST IRON

DRAINAGE, BRASS, COPPER

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Power the nation's appliances

Announcing
THE NEW MARATHON
SPECIAL HYDRO-INSULATED
MOTOR FOR PUMP SERVICE
No more gruelling service is ever required of a motor than in power for water service. Again Marathon, with special attention to those difficult conditions under which these motors work, produces another winner.
Dependable — Economical — Quiet
BASEMENT
PUMP HOUSE
PIT

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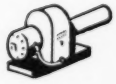
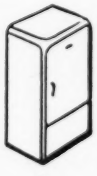
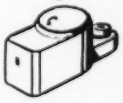
SUCCESSFUL YEARS
AS FRACTIONAL HORSE POWER
Motor Specialists







In every field of appliances where power is required, you will find a Marathon Motor doing the work faster . . . easier . . . quieter . . . and more economically.

The designing and building of fractional motors is a specialized craft, a craft in which Marathon has led to produce a "New High" in small motor efficiency.

Marathon Motors are universally recognized in the following industries:

Oil Burners, Water Systems
Air Conditioning, Air Compressors
Refrigerators, Unit Heaters
Ventilator Fans, Stokers
Dairy Equipment, Ironing Machines
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MARATHON ELECTRIC MFG. CORPORATION

Makers of Fine Motors for Appliances and Equipment

WAUSAU, WISCONSIN

THE *New* INTERNATIONAL
PICK-UP TRUCKS
IN 3 SIZES

The ALL-STEEL CAB is a feature in every new International. The one-piece top, the sides, the back and cowl panels are welded into the complete cab frame. Rubber mountings wherever cushioning is needed. This is the roomy, well-appointed de luxe cab.

● In the new International Truck line special attention has been given the popular pick-up type of truck—from the standpoint of appearance as well as all-around utility. The men who design and build and test them took all the time that this kind of a job requires and put into these new Internationals all the experience that Harvester has gathered in more than thirty years of truck manufacture.

Pick-Up bodies are available in 76, 88, and 102-inch (inside body) lengths for use on International chassis in 113, 125, and 130-inch wheelbases. These durable all-steel bodies meet every need in pick-up truck work, offering practical and attractive design. The roomy all-steel cab is designed and equipped for maximum comfort, convenience, and safety under all operating conditions.

It is that way throughout the entire International Truck line. No matter what the load, there is always an International built to fit the job exactly. There are 26 models to choose from, and capacities ranging from Half-Ton to heavy-duty Six-Wheelers. Write for a catalog, or call on the nearest International Truck dealer or Company-owned branch and see the new trucks.

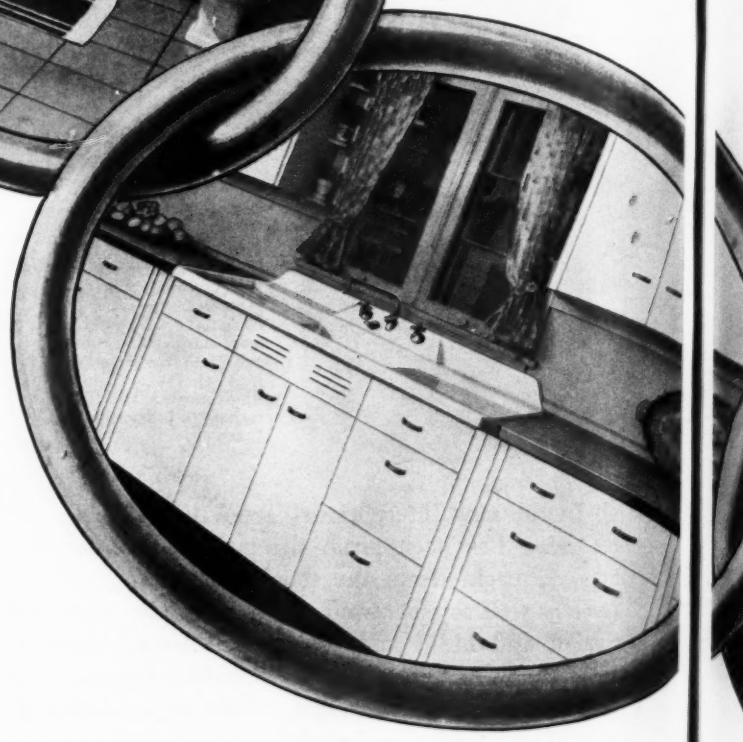
INTERNATIONAL HARVESTER COMPANY
180 No. Michigan Ave. (INCORPORATED) Chicago, Illinois

INTERNATIONAL TRUCKS

THREE

Use the Crane Kitchen Planning Service to help you sell complete kitchen installations. Crane-Equipped kitchens are the last word in modern kitchen efficiency. The glistening finish of Crane sinks and their many practical features . . . the scientifically designed spacious cabinets . . . will please the eye and the heart of any housewife.

When you install Crane-Equipment in the bathroom, you gain another satisfied customer. Smart, modern design . . . lustrous finish . . . beautiful colors . . . every desirable convenience feature . . . trouble-free mechanical operation . . . are some of the reasons why Crane bathroom plumbing enjoys greater preference.



● Tie them together in your mind—talk all three to your customers—bathroom, kitchen and basement—three links in your chain of profit. Crane national advertising reaches your customers—Crane display rooms help your customers make their selection—Crane Dealer Helps tie you in with this program—the Crane Budget Plan finances your sales—and the complete Crane line of quality plumbing and heating equipment all combine to build bigger sales—and to earn bigger profits—for you.

CRANE

CRANE CO., GENERAL OFFICES: 836 SOUTH MICHIGAN AVENUE, CHICAGO, ILLINOIS

Branches and Sales Offices in One Hundred and Sixty Cities

VALVES, FITTINGS, FABRICATED PIPE, PUMPS, PLUMBING AND HEATING MATERIAL

LINKS IN PROFIT'S CHAIN...

THREE major areas of plumbing activity in the home—three chances for worthwhile profit for plumbing and heating contractors—the bathroom—the kitchen—the basement.

Just as inevitably as the links follow one another in a chain—so sales follow one another on the order books of the contractor who is selling Crane-Equipment. The installation of a new kitchen sink may easily lead to the sale of a complete bathroom. The sale of a new laundry tray can often be converted into a sizable order for a modern, efficient heating system.

This is possible because the Crane line is complete—because the Crane name is recognized as standing for the highest quality. This reputation, backed by the extensive line of Crane-Equipment, will help build sales for you. Now is the time to tie your sales efforts into the Crane extensive promotional program. Ask the Crane salesman to show you—how Crane national advertising—how Crane direct mail—how Crane Dealer Helps will aid you in building greater sales.

The best way to make warm friends of your customers is to recommend a Crane heating system. The complete Crane line for every fuel includes the Basmor Gas-Fired Boiler—an attractive compact unit noted for its high efficiency and dependable operation. It's "tops" in automatic heating.

CHICAGO FAUCET NEWS

Issued Monthly by The Chicago Faucet Co., 2700-22 N. Crawford Ave., Chicago, Ill. Vol. 6, No. 1

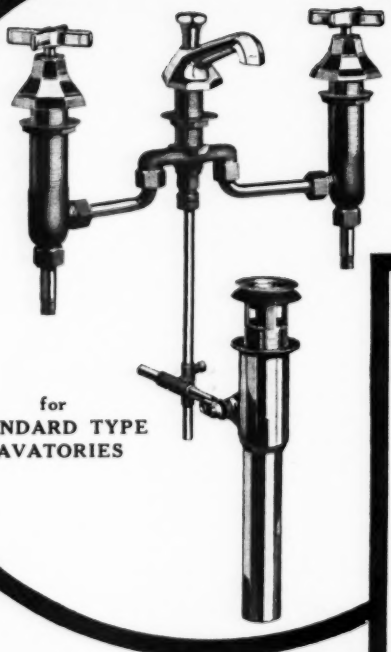
All parts of Chicago Faucets subject to wear are incorporated in a standardized, renewable, interchangeable operating unit and are as easily renewable as an electric light bulb.

The Newest Trim for Bath and Lavatory Fixtures

HI-LITE

STYLE *at* **MODERATE COST**

FOR BATHTUBS



for STANDARD TYPE LAVATORIES

for BRIGGS SHELF-BACK LAVATORIES

Hi-Lite trim gives you a broad range of sales appeal

Hi-Lite has those elements of grace and beauty, wrought into the modern vogue for scintillant facets, which many style conscious people now prefer. It has strong beauty appeal to the aesthetic sense of those to whom price is a secondary consideration. To those who must yield to price restrictions, Hi-Lite has a double appeal. It is "just what they wanted," and they can afford it. For Hi-Lite, with all its modern beauty, all its style, is very moderately priced. Put Hi-Lite on display in your show room and watch the orders roll in.

WRITE TODAY FOR ILLUSTRATED PRICE LIST NO. 116

Increase your profits with J&L STEEL

"I save TIME TROUBLE and MONEY . . . I buy all my pipe from my J&L Distributor"

"My Jones & Laughlin Distributor always gives me the kind of service I need. When I call on him for pipe, I get the kind I want . . . when I want it. That has saved me a lot of time and money.

"And you can't beat J&L Pipe. It's clean and smooth . . . inside and out, and the mill threads are always true. It cuts and threads easily and accurately . . . saves me hours on every job I do."

You, too, can save money and turn out better work in less time. Buy J&L Pipe . . . from your J&L Distributor.

J&L PIPE

This pipe handbook—SP-3—gives you detailed specifications and designing data. Write for your copy today, on your business letterhead.

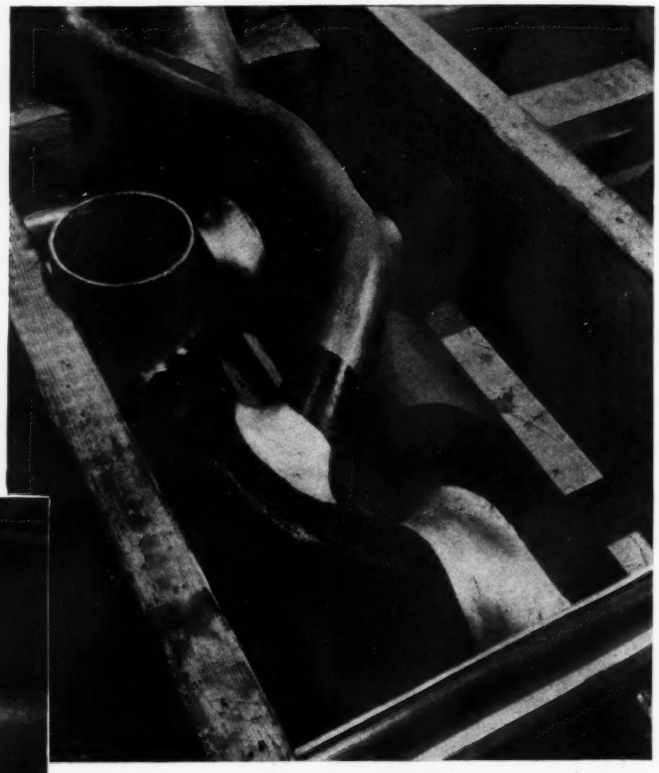
JONES & LAUGHLIN STEEL CORPORATION

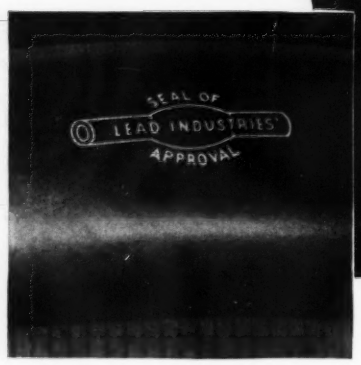
PITTSBURGH, PENNSYLVANIA

MAKERS OF HIGH GRADE IRON AND STEEL PRODUCTS SINCE 1850

LEAD

NEEDS LESS SPACE, NO JOISTS NOTCHED





Excellent example of skilled lead craftsmanship, as only a plumber can do, showing flexibility, compactness, and ability to install lead pipe without reducing strength of structural members.

The **SEAL** *identifies highest quality material*

The plumber is often faced, in modern building design, with the problem of installing piping so that it will adequately serve the numerous fixtures in a sanitary manner and yet not result in a structure weakened by cut joists and beams. Because lead pipe is flexible and joints require little room, lead plumbing can be installed in limited spaces, reeved through holes in joists, and bent to avoid obstacles. This preserves the structural strength planned by the designer without the expense of reinforcement or the disadvantage of many joints. Sagging floors, cracked ceilings and walls and other defects are avoided, and the plumber who installs lead has a real selling point when talking to architects and owners.

The durability, flexibility and other advantages of lead have caused 25 State Associations of Master Plumbers to recommend the more extensive use of lead in plumbing. As H. W. Eckhardt, of Cleveland, Secretary-Treasurer of the Ohio State Association of Master Plumbers, says, "I recommend lead pipe for good installations. It brings me additional business."

Now you are further protected if you use only lead pipe, traps and bends stamped with the "Lead Industries' Seal of Approval." It is your assurance that the rigid standards of purity, wall thickness and manufacture set by the Association have been met. Lead Industries Association, 420 Lexington Avenue, New York, N. Y.

THE ADVANTAGES OF LEAD PIPE

DURABILITY • FLEXIBILITY
COMPACTNESS • NON-RUSTING
MINIMUM CLOGGING
PREVENTS TRAP SIPHONAGE
COSTS LITTLE OR NO MORE
ONLY A PLUMBER CAN INSTALL
NON-STAINING

THE ADVANTAGES OF WIPED JOINTS

MINIMUM RESISTANCE TO FLOW
MAKES ONE CONTINUOUS PIECE OF PIPE • CANNOT LOOSEN
NO THREADING • NO WEAKENING • A SKILLED OPERATION, NO GUESSWORK

REMEMBER—EVERY LEAD JOB IS A PLUMBER'S JOB

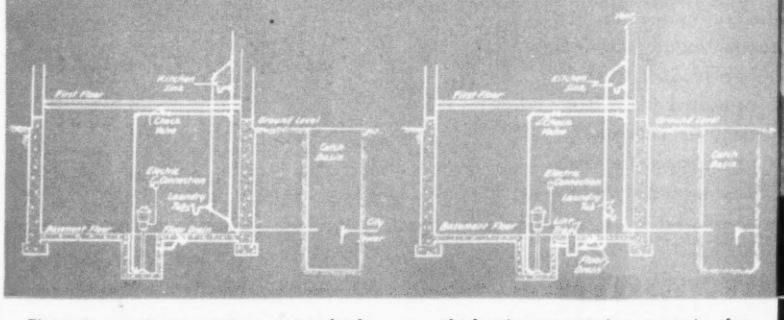
YOU CAN MAKE MONEY ON *Backwater Protection* AND HERE IS HOW TO GO ABOUT THE JOB!

THERE is a new field of work for sump pumps today . . . a field that has developed so rapidly that many master plumbers have sold and installed more sump pumps within the last year than they sold in all of their previous years in business.

These master plumbers are installing sump pumps as a positive protection against backwater using hook-ups of the type shown below.

Check over these hook-ups and then think how many basements there are where you could easily sell this idea of flood water protection to the owners. Then send in the coupon for the complete sales story on Imperial floatless sump pumps.

THE IMPERIAL BRASS MANUFACTURING CO.
1231 W. Harrison St., Chicago, Ill.



The only positive protection against backwater is to cut the basement entirely off from drain connections as shown in these hook-ups which are now being used by master plumbers in many sections. Architects are also specifying this type of layout as the only positive protection wherever sewer level or sewer capacity makes backwater a possibility.

At the left is a hook-up that furnishes backwater protection up to the height of the laundry tubs. On the right is a hook-up which gives protection even in the most severe cases since the laundry tubs also drain into the sump. On every new job where you figure the plumbing, suggest this positive form of backwater protection to the architect, the general contractor, or the owner.

Every old job where the basement has been flooded also becomes a good prospect. It's a simple installation job to cut these basements off from drain connections by using either one of the hook-ups shown above.

LEVEL CONTROL BY ELECTRODES

The motor starts when the water reaches the upper electrode and stops when the lower electrode is reached. This control principle has been remarkably successful on many industrial devices where absolute dependability is required. There are no floats or mechanical linkages. Mud, debris or corrosion do not affect the starting or stopping. Absolutely safe as shown by thousands of installations as well as by full approval of the Underwriters Laboratories.

The flooded basement season will soon be here. Get set to pick up some profitable business on Imperial Floatless Sump Pumps. Bulletins and sales helps of all kinds are available that show exactly how master plumbers are going after this business.

SEND IN THE COUPON FOR THE COMPLETE SALES STORY

IMPERIAL *Floatless Electric Sump Pump*

The Imperial Brass Mfg. Co.
1231 W. Harrison St., Chicago, Ill.
Send me complete information on how to sell sump pumps for backwater protection.

Name .....

Street Address .....

City ..... State .....

HERE IT IS!
YOUR CHANCE TO SELL REAL MODERNIZATION!

EVERY burner purchaser is a prospect for a complete modernization job! This new Fitzgibbons conditioner enables you to quote modern "split-system" air conditioning at a price easily within the reach of most buyers. This vast new market is here now through—

The FITZGIBBONSAIRE JR.

THE NEW MODERATE-COST AIRCONDITIONER
FOR "SPLIT-SYSTEMS"

Provides cleaned, tempered, humidified, circulated air for lower floor—living room, dining room. Simple, low-cost installation—no need for extensive, costly duct work in upper walls. Unit can be installed supported from basement ceiling, wherever most convenient or economical, regardless of location of boiler. Its price opens the door to "split-system" air conditioning in almost every automatically heated home.

The OIL-EIGHTY AUTOMATIC

THE FITZGIBBONS STEEL BOILER
FOR OIL BURNERS

Teams up with the Fitzgibbonsaire Jr., and supplies economical steel boiler radiator heat to the rest of the house. Supplies, too, year-'round domestic hot water tanklessly. Best of all, this boiler provides just the right operating conditions for your burner. Eliminates profit-eating trouble calls, promotes burner efficiency. Thousands of installations prove it.

SELL with your burner, the inestimable value of healthful conditioned air, steel boiler radiator heat, year-'round tankless hot water supply.

Not only is every new burner customer a logical prospect for modernization, but every past burner installation is also a prospective air conditioning customer. Get the facts about this new air conditioning set-up, designed to meet a big market. WRITE, TO-DAY for the catalog, and full information on the Fitzgibbons Dealer Franchise.

MOST ECONOMICAL IN FUEL
THE FITZGIBBONS BOILER

Fitzgibbons Boiler Company, Inc.

General Offices: ARCHITECTS BLDG., 101 PARK AVENUE, NEW YORK, N.Y.
Works: OSWEGO, N. Y.
Branches and Representatives in Principal Cities
Distributed in Canada by: FESS OIL BURNERS *of* CANADA, LTD.
Toronto, Ontario; Montreal, Quebec

AND YOU WILL ESCAPE FROM PROFIT LEAKS ON SERVICE CALLS

Give Them PENN Comfort Zone Control

MAKE THEM FORGET HEAT CONTROLS

TEMTROL and TEM-CLOCK, twin guardians of comfort and economy do more than turn the heating plant on and off. TEMTROL ANTICIPATES temperature changes. Your customer does not jump up to move up the thermostat. Then down. Then up again. Never quite sure whether or not temperature will remain at the comfort level. Sell uniform temperature for *comfort*... *timed* temperature for economy with Temtrol and Tem-Clock.

FREE GUIDE

This is the new, improved Home Comfort Guide — a flip of your fingers shows how inside temperatures vary with those outside—but how the "Comfort Zone" is always 70° with your equipment and Penn controls. Mail the coupon.

MAKE PROFITS PERMANENT FOR YOURSELF

when you install PENN TEM-CLOCK and TEMTROL as part of *any* automatic heating system. Be it oil, gas or coal fired, your customers will save you money when they *do not* call for service.

TEM-CLOCK mounted at eye level provides truly deluxe automatic heat. It saves on fuel bills the year around.

TEMTROL mounted at table height anticipates and eliminates temperature changes in the comfort zone.

CLIP OFF THIS COUPON

PENN ELECTRIC SWITCH CO., Goshen, Indiana

Send me (no charge)_____ No. _____ "Home Comfort Guide" moving charts and full instructions for their operation.

I employ_____ salesmen. I handle_____ (Makes of equipment)

Name_____

Street and No._____

City_____ State_____

PENN ELECTRIC SWITCH CO.

GOSHEN, INDIANA

OFFICES: New York, Boston, Detroit, Dayton, Chicago, Moline, Ill. EXPORT: 100 Varick St., N. Y. C. Distributors in Principal Cities. REPRESENTATIVES: Garland Affolter Engr. Corp., San Francisco, Seattle, Portland, Los Angeles; Forslund Pump and Machinery Co., Kansas City; The Uhl Co., Minneapolis; Jules Beneke, St. Louis; Monarch Sales, Denver.

YOU CAN BID WITH CONFIDENCE

IF YOU USE *Bethlehem Pipe*

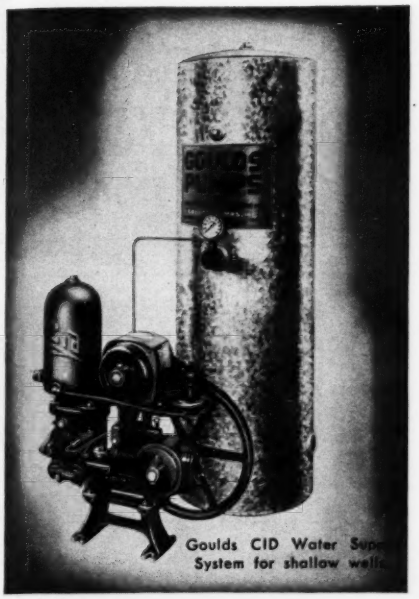
WHEN the bidding is close, you want to be sure of your materials—sure that your calculations won't be upset by delays during installation.

With Bethlehem pipe you *can* be sure. Bethlehem pipe is made of soft, uniform steel—steel that can be cleanly threaded in a hurry. If speed is essential, you'll find that Bethlehem pipe can stand rough-and-ready handling. Soundly welded joints and high ductility make this pipe so rugged that the toughest rush job can't harm it.

When the last joint is closed and water flows through the lines Bethlehem pipe scores again. For it's scale-free, inside as well as out. Valves don't clog. Water flows freely. There's no time lost disconnecting, checking and refitting. Ask your local distributor for Bethlehem pipe.

BETHLEHEM STEEL

BETHLEHEM STEEL COMPANY



SELL THE PUMPS THAT YOU WOULD BUY

GOULDS PUMPS

If you were buying pumps you would pick Goulds. Because the complete range of sizes—for either deep or shallow wells—allow you to select a pump exactly suited to your capacity requirements . . . because fine materials, careful workmanship and extra strength in every part assure dependable day in and day out performance without expensive service calls for adjustments and repairs . . . because Goulds quality is unequalled . . . because Goulds prices would give you the greatest value for your pump dollar.

Goulds pumps and water supply systems are sold under a policy, unswervingly maintained, that recognizes and protects the established distributor; that assures full cooperation at all times. Write today for complete information on the Goulds plan. If your regular jobber does not handle the Goulds line, write for name of nearest Goulds distributor.

GOULDS PUMPS, INC.
200 Fall Street Seneca Falls, N. Y.

GOULDS

RUNNING WATER
YOUR FAMILY DESERVES IT

7741

ANTHRACITE HEATING NEWS

PUBLISHED BY ANTHRACITE INDUSTRIES, INC.
CHRYSLER BUILDING, NEW YORK

HERE'S A PROGRAM for business building that is paying dividends for heating contractors who have adopted it.

1. See to it that every property owner and Anthracite dealer in your trading area is fully informed about the Anthracite equipment you sell.

2. Have your salesmen work in close cooperation with Anthracite dealers, and their salesmen, thus amplifying your own selling effort.

3. Establish displays of the Anthracite equipment you sell in a prominent display space in your town. If your showroom is out of the way, do as others have done, hire a vacant downtown store, or window, and put in a display.

4. When selling equipment, point out the economies of Anthracite. The cost of Anthracite has steadily gone down, while oil prices have leaped.

Anthracite is one of the nation's largest industries. It contributes about $155,000,000 to the national yearly payroll. Every ton of Anthracite sold not only adds to the national payroll but also to local payrolls.

● Seventy cents of every dollar spent in the preparation of Anthracite goes into workers' pay envelopes. This is the direct payroll. However, there is also a huge indirect payroll. Steel rails, mine timbers, cars, car wheels and axles, dynamite and blasting powder, sheet steel, and electric power and light equipment . . . all these things take a good percentage of Anthracite income, and spread down into innumerable pay envelopes of workmen who manufacture these supplies. Every ton of Anthracite sold spreads employment to a greater extent than any other fuel.

★

Here are reproductions of full page Anthracite advertising constantly aimed at architects, builders and mortgage institutions. Follow up these prospects, they control a lot of Anthracite equipment business.

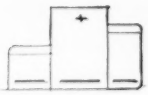
AUTOMATIC ANTHRACITE HEATING
PLANNING FINANCING
Offers unmatched opportunities to MORTGAGEE and MORTGAGOR
MADE EASIER WITH MODERN AUTOMATIC ANTHRACITE HEATING AND AIR CONDITIONING
Pennsylvania ANTHRACITE
THE SOLID FUEL FOR SOLID COMFORT

● With Anthracite, a home owner can choose the degree of fueling convenience he wishes. A simple thermostat, and an adequate Anthracite furnace or boiler, stretches fueling periods to 12 hours or more. Magazine feed boilers need no attention for 24 to 48 hours. Automatic Anthracite burners automatically feed fuel and remove ashes from fall until spring. With all these modern conveniences the home owner also gets the unmatched advantages of Anthracite heat. Economy. Even heat. Clean heat. Complete safety.

● Even with all the sales activity in Anthracite equipment, the surface of possibilities is hardly scratched. At least 85% of present heating equipment is obsolete. There are millions of prospects for thermostats. One-third of all homes have no facilities for continuous hot water. Get your full share of this profitable business.

● "Double Savings With Anthracite." This sales story makes a powerful appeal. The first saving is the low cost of Anthracite. The second saving is the greater efficiency of new Anthracite equipment, which provides more heat with less fuel. Thus, double savings.

F L A S H



AUTOMATIC ANTHRACITE AIR CONDITIONING

Air conditioning engineers credit Anthracite with solving many perplexing problems of winter air conditioning.

COST. Anthracite's economies bring winter air conditioning within reach of millions.

CLEANLINESS. The cleanliness of Anthracite heat has simplified the air filtering problem. With Anthracite there is no soot to clog filters.

EVEN HEAT. In winter air conditioning there is a constant stream of air to be heated. "On and Off" fuels cause "On and Off" heat. The even glowing heat of Anthracite provides evenly heated air.

Write for names of manufacturers of Anthracite air conditioning equipment.

This Seal of Approval appears on Anthracite equipment, only after it has passed the most rigid tests in the heating field.

Pennsylvania ANTHRACITE COAL

● "Pennsylvania Anthracite Coal" and the slogan "The Solid Fuel for Solid Comfort," appear in all consumer advertising of Anthracite Industries, Inc. Amplify the power of your selling efforts by tying it to broad promotion programs of Anthracite Industries, Inc.

BEST for ANY PIPE JOB

PERMANENT MODERN PIPING SYSTEMS FOR PLUMBING·HEATING and AIR·CONDITIONING

VISUAL PROOF

The STREAMLINE Fitting is the only solder type fitting on the market in which POSITIVE PROOF of a leak-proof joint can actually be seen without resorting to a pressure test.

When the plumber or steamfitter makes a joint with a STREAMLINE Solder Fitting and Copper Pipe, he can tell at a glance that the joint is leak-proof and permanently tight, by the appearance of the solder as a complete ring at the end of the fitting. All that is necessary is for him to comply with certain simple rules—and the result is automatically certain. There is no guesswork about it. STREAMLINE Solder Fittings carry with them their own indisputable proof of a permanent, perfectly bonded joint.

STREAMLINE COPPER PIPE AND FITTINGS

TRADE MARK REG. U.S. PAT. OFFICE

The STREAMLINE Cast Bronze Fitting is rigid and strong. The pipe openings are machined to accurate capillary fit for the pipe—and more than that, they stay perfectly round and retain their proper tolerance, even when subjected to the intense heat required when the higher melting point solders are used. In short, they make a more permanent, reliable and workmanlike job. They are more positive, convenient and satisfactory in the actual work of installing.

STREAMLINE Copper Pipe is not commercial copper pipe. It is a greatly improved product of uniform diameter and consistently close tolerance.

STREAMLINE Solder Fittings are manufactured in sizes from 1/4" to 12" inclusive, and in a complete range of reductions in tees and elbows. You connect directly to the smaller or larger pipe lines without the use of adapters with their additional expense both for material and labor. A BETTER JOB IN A LESS EXPENSIVE JOB—AND A MORE WORKMANLIKE JOB. USE STREAMLINE Copper Pipe, connect it with STREAMLINE Fittings—ALWAYS.

There is only one line of solder fittings manufactured under the trade name STREAMLINE. STREAMLINE Fittings were invented by engineers of the Mueller Brass Co., Port Huron, Michigan. These patented solder joint fittings are manufactured only by the Mueller Brass Co., and certain other reliable concerns who hold a License under Mueller Brass Co. Patents. STREAMLINE is the Registered Trade Mark of this Company.

WHEN YOU ORDER STREAMLINE COPPER PIPE AND FITTINGS, INSIST ON GETTING THEM.

Send for your copy of new Catalog G listing and illustrating the greatest range of solder type fittings on the market. Complete with dimensional drawings and roughing in dimensions—easy to find and to read.

STREAMLINE
PIPE AND FITTINGS DIVISION
MUELLER BRASS CO.
PORT HURON, MICHIGAN

Hot Water Controls

Steam Controls

Thermostats

Relays

ANNOUNCING

ELECTRICAL B & G CONTROLS

For Simplifying the Purchase, Installation and Operation of Electrical Equipment for B & G Heaters and Heating Systems

Thermostats . . . Hot Water Controls . . . Steam and Vapor Controls . . . Fan Controls . . . Relays . . . every device for controlling heating systems automatically. Designed by nationally known control engineers—featuring advances in construction which establish entirely new standards of electrical control.

B & G Controls are not "just another" line of equipment, but are specifically designed to provide an easier, simpler way to control the operation of B & G Heaters and Heating Systems. They are not offered as new, untried products, but have a demonstrable record of successful operation. And B & G Controls are as smartly modern in appearance as they are unfailing in performance.

Send today for full information and prices.

BELL & GOSSETT CO.

3000 WALLACE STREET • CHICAGO

B & G Electrical Controls are stocked and sold by all leading wholesalers

THE No. 300 Arco-Detroit Multiport for radiators (part of the Ideal Fast-Venting System) is an adjustable valve. By having a much larger port area to begin with, it has much wider range of adjustment than other air valves.

Also the adjustment of the Multiport is directly proportional to the distance the adjustment arm is moved. If this indicator is moved half way between the ends of the scale, port area is reduced just half. Any other amount of adjustment is attained in the same way.

Therefore, when you look at a Multiport you can see exactly how much the maximum port area has been throttled. When you have to balance the venting of a one-pipe steam job you can do it intelligently, quickly and effectively.

Multiport adjustment in no way interferes with the action of the Automatic modulator which makes possible all the advantages of large port low pressure venting—rapid venting of all radiators simultaneously as soon as the heating cycle starts.

The No. 300 Multiport, together with the No. 861 Hurivent, comprise the Ideal Fast-Venting System.

AUTOMATIC MODULATOR
PATENTED

DETROIT LUBRICATOR COMPANY

5900 TRUMBULL AVE. • DETROIT, MICH., U.S.A.

DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

SUMMING IT ALL UP

REVIEW in your mind the notable installations of Trane equipment. It will cover the past 50 years of the progress of Training Air—to heat it, to cool it, to ventilate, cleanse, humidify and to dehumidify it.

Whatever the problem, in relation to air treatment for human comfort and for commercial conditions, Trane has the solution, due to the efficiency and flexibility of Trane Related Units.

Trane engineers — in 70 offices — are ready to collaborate with Architects, Engineers, Contractors and Industry in working out problems.

Summing it all up, Trane Related Units make possible the N^{th} Degree in Heating and Air Conditioning.

The N^{th} DEGREE IN HEATING

HEATING COILS
CONVECTORS
UNIT HEATERS
BLAST HEATERS
PROPELLER UNIT HEATERS
BLOWER UNIT HEATERS
PROJECTION UNIT HEATERS
MULTIPLE PROJECTION UNIT HEATERS
HUMIDIFIERS
HEATING SPECIALTIES
TEMPERATURE CONTROL VALVES
COOLING COILS
CLIMATE CHANGERS
UNIT VENTILATORS
UNIT AIR CONDITIONERS
COMMERCIAL AIR CONDITIONERS
INDUSTRIAL AIR CONDITIONERS
RAILWAY AIR CONDITIONERS
PRODUCT COOLERS
AIR WASHERS
EVAPORATIVE CONDENSERS
REFRIGERANT SUB-COOLERS
TRANE PUMPS
PROCESS CONDITIONERS

= TRANE AIR

Serves HEATING AND AIR CONDITIONING FROM 70 OFFICES

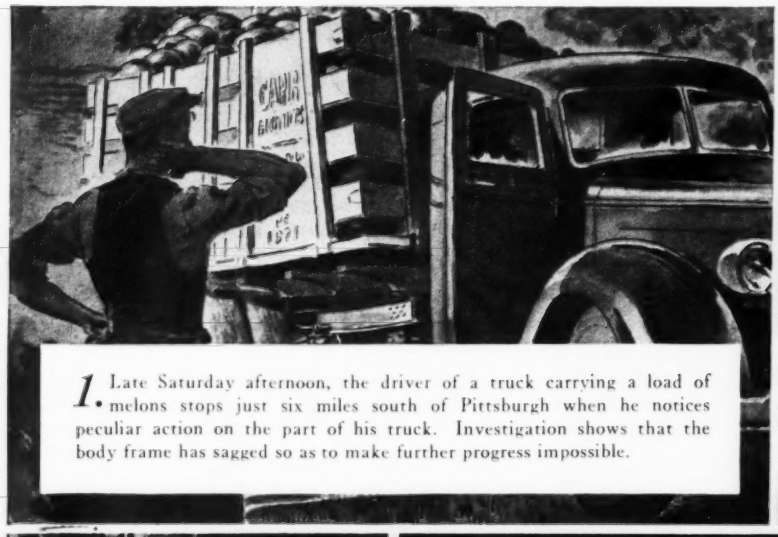
Albany, N. Y.
Altoona, Pa.
Atlanta, Ga.
Aurora, Ill.
Baltimore, Md.
Birmingham, Ala.
Boston, Mass.
Bridgeport, Conn.
Brooklyn, N. Y.
Buffalo, N. Y.
Canton, Ohio
Charleston, W. Va.
Chicago, Ill.
Cincinnati, Ohio
Clarksburg, W. Va.
Cleveland, Ohio
Columbus, Ohio
Dallas, Texas
Davenport, Iowa
Dayton, Ohio
Denver, Colo.
Des Moines, Iowa
Detroit, Mich.
Findlay, Ohio
Flint, Mich.
Gainesville, Fla.
Greenville, S. C.
Greensboro, N. C.
Harrisburg, Pa.
Houston, Texas
Indianapolis, Ind.
Jackson, Miss.
Jacksonville, Fla.
Juneau, Alaska
Kalamazoo, Mich.
Kansas City, Mo.
La Crosse, Wis.
Lake Charles, La.
Little Rock, Ark.
Livingston, Mont.
Louisville, Ky.
Los Angeles, Calif.
Memphis, Tenn.
Milwaukee, Wis.
Missoula, Mont.
New Haven, Conn.
New Orleans, La.
New York City
Newark, N. J.
Norwich, Conn.
Oklahoma City, Okla.
Omaha, Neb.
Peoria, Ill.
Philadelphia, Pa.
Phoenix, Ariz.
Pittsburgh, Pa.
Portland, Ore.
Portsmouth, Ohio
Richmond, Va.
Rochester, N. Y.
St. Louis, Mo.
St. Paul, Minn.
Salt Lake City, Utah
San Antonio, Texas
San Francisco, Calif.
Seattle, Wash.
Sioux City, Iowa
South Bend, Ind.
Syracuse, N. Y.
Toledo, Ohio
Washington, D. C.
White Plains, N. Y.
Wilkes-Barre, Pa.

GENERAL OFFICES
The Trane Company, La Crosse, Wis.
2006 Cameron Ave.
Trane Company of Canada, Ltd.
Toronto, Ont.

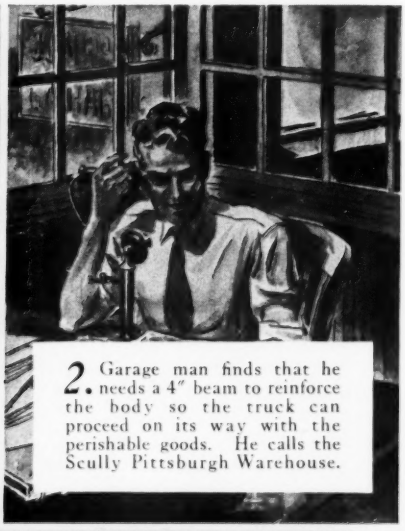
FOREIGN
Toronto, Ont., Canada, (with 11 branches)
Buenos Aires, Argentina
Hong Kong, China
Mexico, D. F.

AND AIR CONDITIONING.....

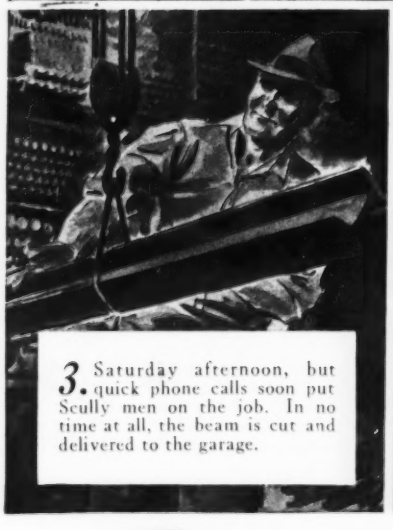
Phone call brings "SCULLY SERVICE" *. . . saves loss on Perishable Goods*



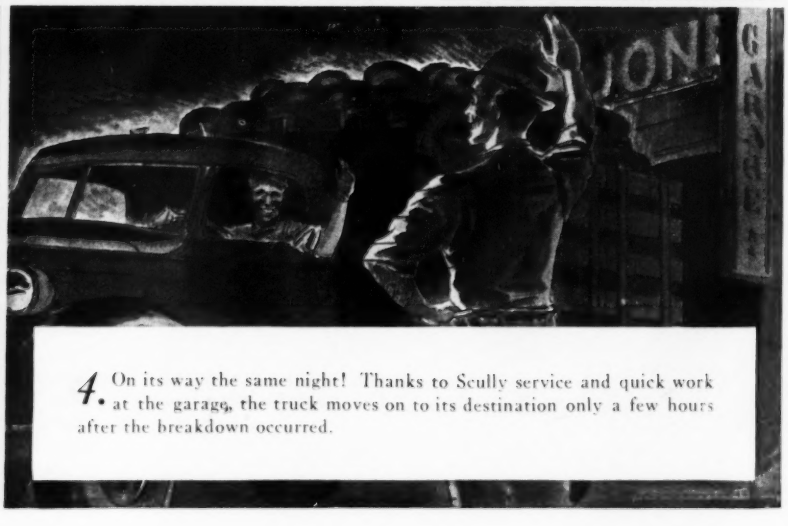
1. Late Saturday afternoon, the driver of a truck carrying a load of melons stops just six miles south of Pittsburgh when he notices peculiar action on the part of his truck. Investigation shows that the body frame has sagged so as to make further progress impossible.



2. Garage man finds that he needs a 4" beam to reinforce the body so the truck can proceed on its way with the perishable goods. He calls the Scully Pittsburgh Warehouse.



3. Saturday afternoon, but quick phone calls soon put Scully men on the job. In no time at all, the beam is cut and delivered to the garage.



4. On its way the same night! Thanks to Scully service and quick work at the garage, the truck moves on to its destination only a few hours after the breakdown occurred.

Scully Service

SMALL orders—large orders—rush or not, they all get Scully Service. Call Scully in emergencies and for your regular requirements, too. Every one of the eight Scully warehouses carries a big stock of steel, steel products, copper and brass.

Next time try Scully. Phone, wire or write the nearest Scully warehouse. Send for a free copy of our handy, complete Stock List and Reference Book. Remember: Scully Service is your insurance against delay.

SCULLY STEEL PRODUCTS COMPANY

Distributors of Steel, Steel Products, Copper and Brass

CHICAGO • NEWARK, N. J. • ST. LOUIS • BOSTON • ST. PAUL
CLEVELAND • PITTSBURGH • BALTIMORE

UNITED STATES STEEL

PROFITABLE PRODUCTS FOR A LONG-NEGLECTED MARKET!

Reports from every section of the country show that factories, offices, stores, schools, hotels, filling stations are undergoing a long-needed change . . . the plumbing is being brought up-to-date. Are you in for your share? If not, try these Kohler products on the next prospect. Scout around and see how many of these profitable jobs you can line up before you close the books for 1937. It's worth your while! Kohler Co. *Founded 1873.* Kohler, Wisconsin.

MONTELLO enameled drinking fountain. Guarded angle-stream, non-squirting head and volume regulator. Various lengths.

DAYBROOK vitreous-china drinking fountain. Guarded angle-stream, squirt-proof head, self-closing control valve.

DALRY shower. Large, rigid shower head. Galvanized riser. Renewable seats.

HUDSON enameled lavatory. Space-saving, mixer-type Centra fitting. Pop-up drain.

CALVERT vitreous-china lavatory. Hot-and-cold compression faucets. Pop-up drain.

BELDEN enameled wash sink. Rough-plated, double-compression faucets. Various lengths.

ELHAM enameled urinal. Automatic siphon flush. Top supply fittings. Beehive strainer.

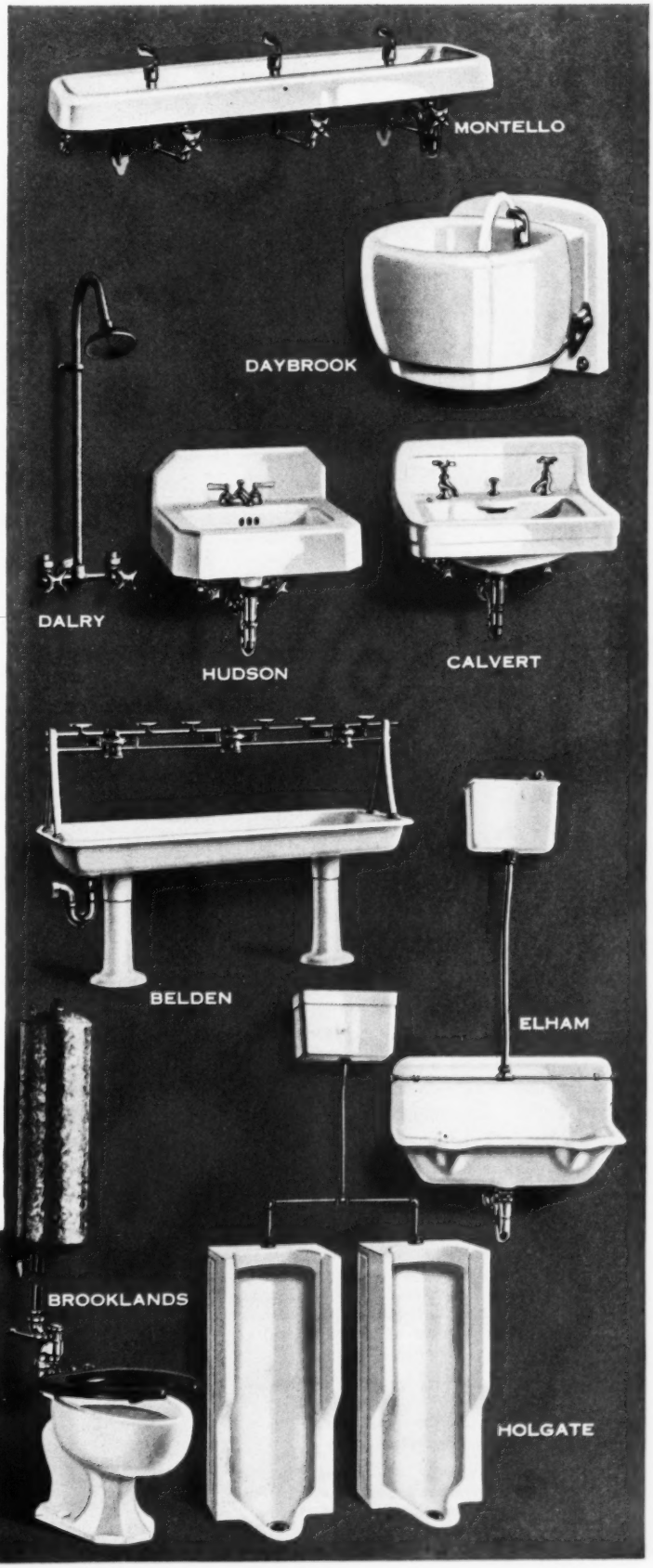
HOLGATE vitreous-china urinal stalls. Extended wings. Integral flushing rim. Automatic fitting.

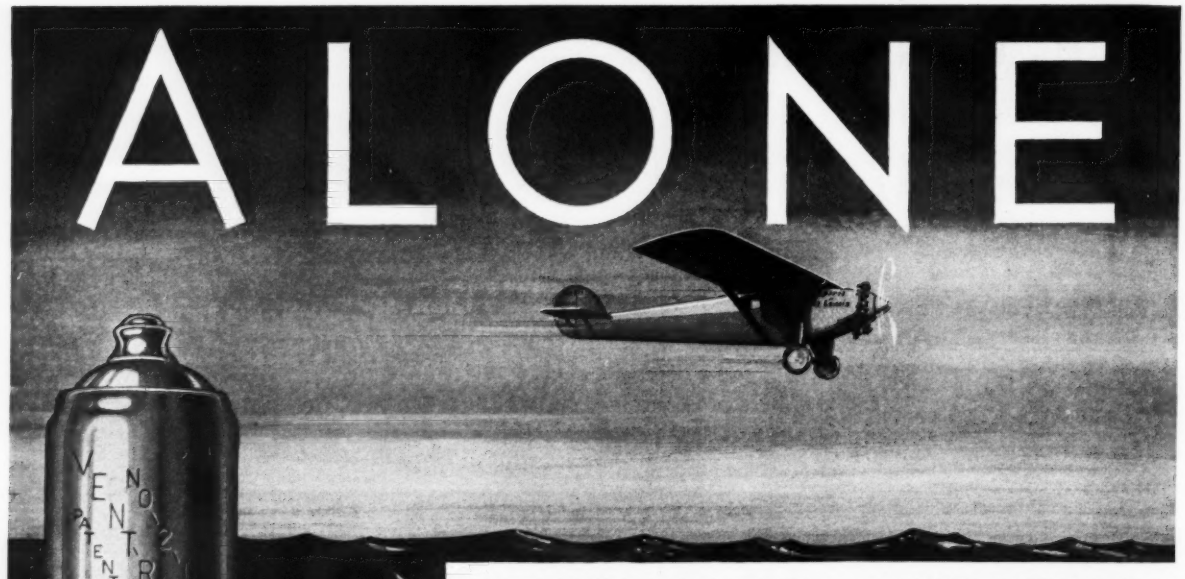
BROOKLANDS reverse trap closet. Hydromatic pressure tank. No special piping necessary when replacing closet with high tank.

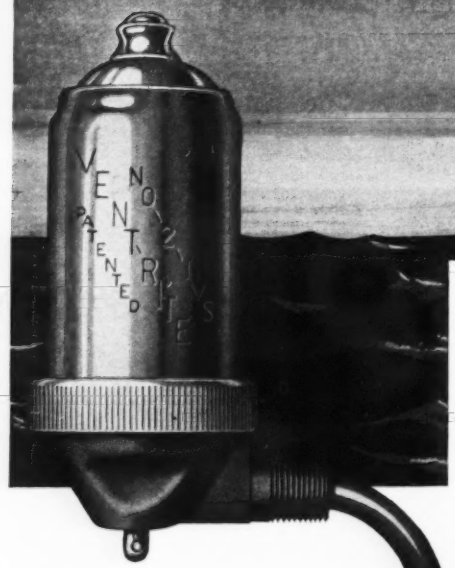
PENRYN elongated siphon jet closet. Tough, Tuskolite seat. Angle flush valve. Positive flushing.

KOHLER OF KOHLER

PLANNED PLUMBING AND HEATING







VENT-RITE AIR VALVES

Alone in the field — Vent-Rite today is recommending the use of the

VENT-RITE BALANCER

on all automatically fired, one-pipe steam systems equipped with Vacuum Type Valves.

Heating Engineers who have installed the Vent-Rite Balancer with various types of Vacuum Valves acclaim its efficiency and the greatly improved Performance it establishes on the most troublesome one-pipe jobs.

If you have not yet installed a Vent-Rite Balancer you should investigate its remarkable possibilities at once.

Your copy of "Revolutionizing Steam Heating with the Vent-Rite Balancer" is ready. Write for it —Now.

SETTING THE PACE IN PERFORMANCE

the Lone Eagle's flight . . . undimmed after a decade . . . will always stand out—ALONE.

And—it is no "flight of fancy" but Performance—ALONE—that has sent Vent-Rites soaring to popularity among thousands of Heating Contractors throughout this continent.

When you sell a valve job you are entitled to Dependable Performance and Profit. With Vent-Rites you get both:—Performance that will "Balance" the toughest one-pipe steam job and insure uniform heat transfer to all radiators regardless of size, distance from boiler or pressure carried—and a margin of profit that will amply pay you.

Here are but a few Vent-Rite features which provide that Perfect Performance:

1. Exceptionally wide range of venting rates that will insure Controlled Steam Distribution.
2. Tamper proof adjustment—out of sight, cannot be disturbed by accident or meddlesome fingers—once set by the heating contractor it remains Set.
3. Can be taken apart and thoroughly cleaned should they become clogged with dirt or other matter.

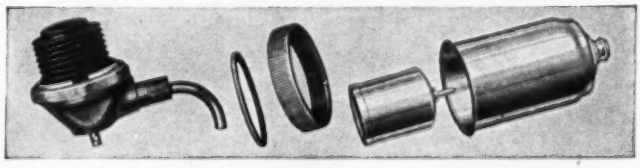
The line of Vent-Rite Valves is complete for every venting requirement. Install them wherever venting is needed in order that your customers may enjoy the advantages of their ever dependable performance.

AND HERE IS AN IMPORTANT POINT FOR YOU TO CONSIDER—AND REMEMBER:

You can quote list prices on Vent-Rites and get them because your customers cannot buy Vent-Rites at Chain or Hardware Stores, D.T.U.'s or Mail Order Houses.

Vent-Rites are sold only through SELECTED Recognized Wholesalers of Plumbing & Heating Supplies and to protect your profits and interests, we shall, to the limit of our ability and resources, continue to keep the sale of Vent-Rites in these recognized trade channels.

ANDERSON PRODUCTS
Incorporated
CAMBRIDGE, MASSACHUSETTS



Only Vent-Rites can be taken apart for thorough cleaning.

CLEAR PROFITS

with the best sales idea in years

CLEAN WATER

from curb to faucet

TURNS LITTLE JOBS INTO BIG PROFITABLE JOBS

SELL CLEAN WATER with Arcoloy and Arco Copper. Turn little repair jobs into big-profit jobs that pay you more for no more work. Installation and roughing in dimensions are the same as old style tanks.

Explain to owners how a permanently clean, domestic hot water supply will banish repair and replacement expense – cost less in the end. Point out that Arcoloy Range Boilers and Tanks have the beauty of copper . . . the strength of steel . . . that they are guaranteed for 20 years (under normal water conditions) . . . can never rust . . . combat corrosion. And that they are made entirely of Arcoloy, even to the spuds and seams welded with Arcoloy Rod.

Display Arcoloy Range Boilers and Tanks. They sell on sight. Get more jobs—better profits! Ask your Plumbing and Heating Supplies Jobber for display material and full facts.

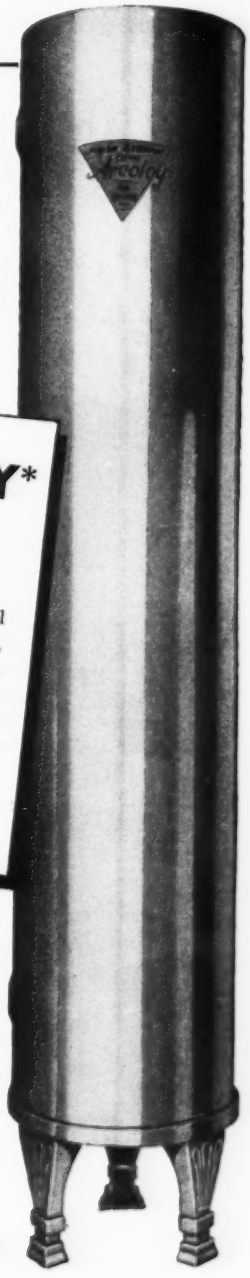
ARCO PIPE & FITTINGS DIVISION
AMERICAN RADIATOR COMPANY
DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION
40 West 40th Street, New York, N. Y.

WRITE TODAY FOR NEW DISPLAY MATERIAL

These two cards, displayed on your counter or in your window will attract attention, bring prospects in.

ARCOLOY*
Range Boilers and Tanks

come in 7 sizes, with full rated gallonage. 2 weights, standard and extra heavy. Guaranteed for 20 years under normal water conditions. Arcoloy Range Boiler stands, finished to match, increase height from floor up to 2".



*A patented metal composed of 95% pure copper with the strength of mild steel. U. S. Pat. No. 2017025.

ARCOLOY*

RANGE BOILERS Arcoloy AND TANKS

GUARANTEED FOR 20 YEARS UNDER NORMAL WATER CONDITIONS

Announcing MYERS SHALLOW WELL WATER SYSTEMS

newly designed and styled for 1938

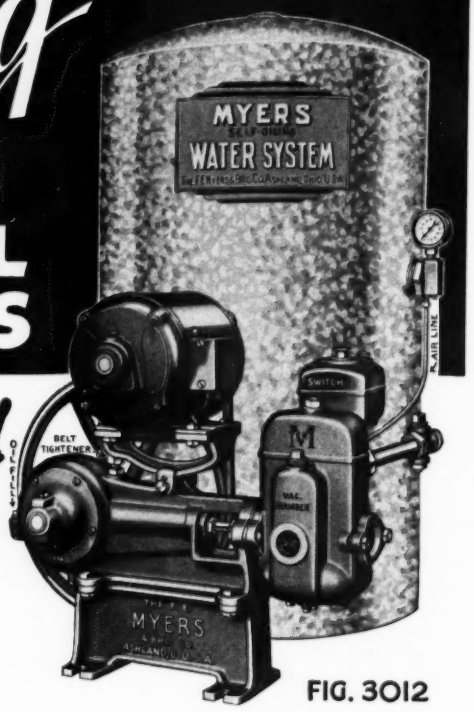


FIG. 3012

FIG. 3013

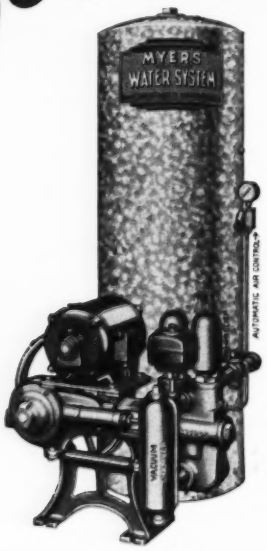


FIG. 3015

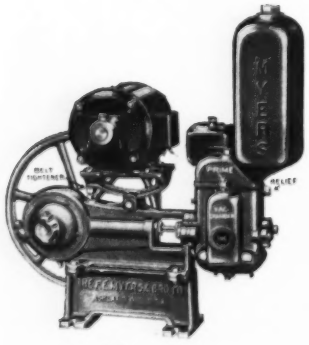


FIG. 3014

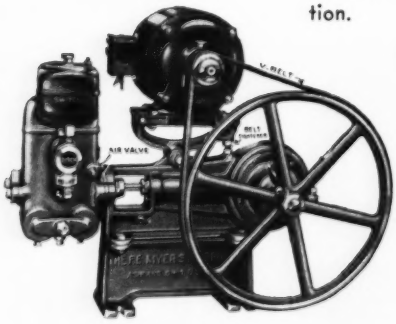


FIG. 3011

Dealers the country over will welcome this newly designed line of Myers Shallow Well Water Systems in styles and sizes for widely diversified requirements in this field.

Modernly styled. Precision built. Attractively finished. New features. New performance values. Favorable prices. You will be just as proud to offer this new line to your customers as we are to offer it to you at this time for your late fall and for your 1938 trade.

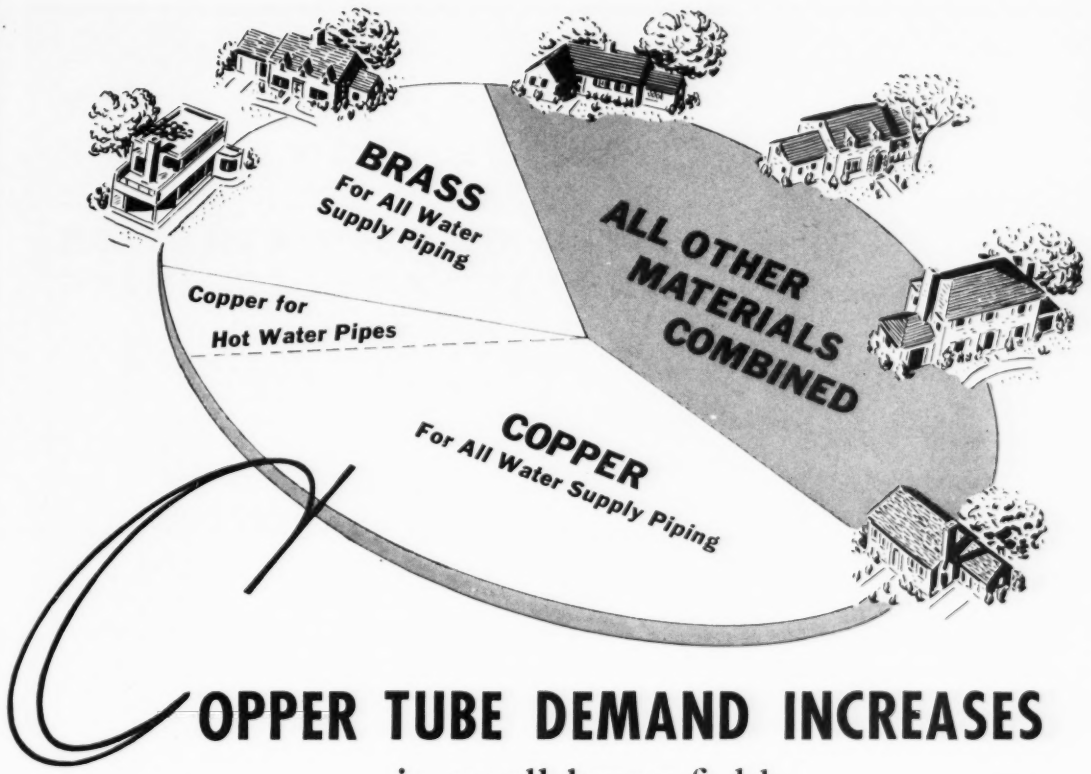
Lack of space does not permit of detailed description so why not write us immediately for new catalog and complete information? We are ready to help you forge ahead to increased business and profits during the months to come. Let's get started today. Write or wire and your inquiry will have prompt attention.

THE F.E. MYERS & BRO. COMPANY
ASHLAND, OHIO.

Take Off Your Hat To The MYERS
PUMPS · WATER SYSTEMS · HAY TOOLS · DOOR HANGERS

"When you think of WATER think of MYERS Pumps and Water Systems"

PUMPS – WATER SYSTEMS – SPRAYERS – HAY TOOLS – DOOR HANGERS



COPPER TUBE DEMAND INCREASES

in small home field

The trend is definitely toward the more general use of copper tube. Plumbing and heating contractors who are active in recommending copper tube *now* will forge ahead.

Important evidence of this trend is contained in the new "1938 Book of Small Houses," prepared by the Editors of "Architectural Forum," and published by Simon & Schuster, New York City. This book shows plans and specifications for 131 small houses ranging in cost from $1000 to $12,000. The material used for water supply piping is named in the specifications given for 107 of these houses. In 31 houses copper tube was used for all water supply lines. In three others copper tube was used for hot water lines. In 24 houses copper alloy (brass) was used. In other words, copper or copper alloy were used in 54% of these 107 small houses, as compared with 46% using all other materials combined.

The book also contains plans and specifications for Resettlement Administration houses on 12 projects. In 11 of these projects, comprising 1580 houses, the specifications given mention the material used for water supply piping. Of these 1580 houses, copper was specified for all water supply piping in 969 houses, and for hot water lines in 95 houses. Combining these figures shows that copper was named for a total of 1064 houses, or 63%, as compared to 37% for all other materials.

There is no getting away from it. Architects, builders and the press are educating the home owner and buyer to realize that copper protects house investments and means more comfort, less trouble, less upkeep.

Get your share of this business. It will pay you to recommend, push, sell, install and learn all about Revere Copper Water Tube. Write for the Revere Copper Water Tube Book, sent free on request. Please address your inquiry to our Executive Offices, 230 Park Avenue, New York City.

Revere Copper *and* Brass

INCORPORATED

FOUNDED BY PAUL REVERE

1801

EXECUTIVE OFFICES: 230 PARK AVENUE, NEW YORK CITY • MILLS: BALTIMORE, MD. • TAUNTON, MASS. NEW BEDFORD, MASS. • ROME, N. Y. • DETROIT, MICH. • CHICAGO, ILL. • SALES OFFICES IN PRINCIPAL CITIES

This MAN'S

TRAINING IS ENDORSED BY MORE THAN 70 LEADING MANUFACTURERS IN THE FIELD OF REFRIGERATION AND AIR CONDITIONING

Number 2.

- HE IS A *New Type of Craftsman* - THE REFRIGERATION & AIR CONDITIONING INSTITUTE'S CONTRIBUTION TO THIS INDUSTRY . .

Yes—a New Type of Craftsman has been created—created especially for the Air Conditioning industry; and according to the Industry's own specifications. He is not a plumber, steamfitter, sheet metal worker, or electrician—but in a way he is a composite of all the crafts embodied in present air conditioning work, because he knows every phase of heating, ventilating, and cooling—knows it from the practical as well as the theoretical side. He has spent over a year IN STUDYING, and four solid weeks in our Shops, IN DOING,—installation, servicing and repairs,—and has worked on practically every type of equipment in use today.

Foremost in his long list of qualifications is the fact that at considerable personal sacrifice in time and money,—and over a long period of time,—he has satisfactorily completed every step of what is, we honestly believe, the most rigid Training Program ever set down by any Industry.

Before he was admitted for Training by the Institute he had to satisfy us, through careful investigation, that he was a man of high character, ambitious, a hard worker, mechanically inclined, and of a good education; also that he was a man who could be depended upon to be a loyal and trustworthy employee.

Under the supervision of some of the Industry's best engineers, he has been trained, by us, to step in where the Application Engineer leaves off, and make work what that Engineer has installed.

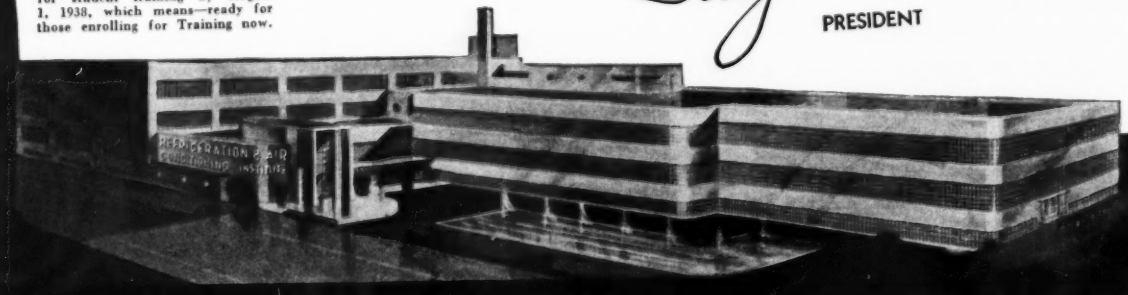
The record of every man trained by the Institute,—including his photograph, our rating of his ability, what his references had to say about him,—in fact, everything that you as an employer would like to know,—is available upon request—without obligation. They should be good men to build on.

Remember! More than 70 leading manufacturers in the refrigeration and air conditioning field are "officially" endorsing and recommending the Training Program that is making this new type of Craftsman possible. And some of these manufacturers have even gone so far as to appoint some of their best engineers and executives to a Board of Governors whose duty it is to see that the Training offered by the Institute meets the Industry's every need; and that men taking this Training are trained exactly as the Industry wants them trained.

If you do not have a copy of the Institute's "Report to the Industry"—a 200 page, cloth bound book with 15 big photographs—please ask for it on your letterhead.

Ray A. Smith
PRESIDENT

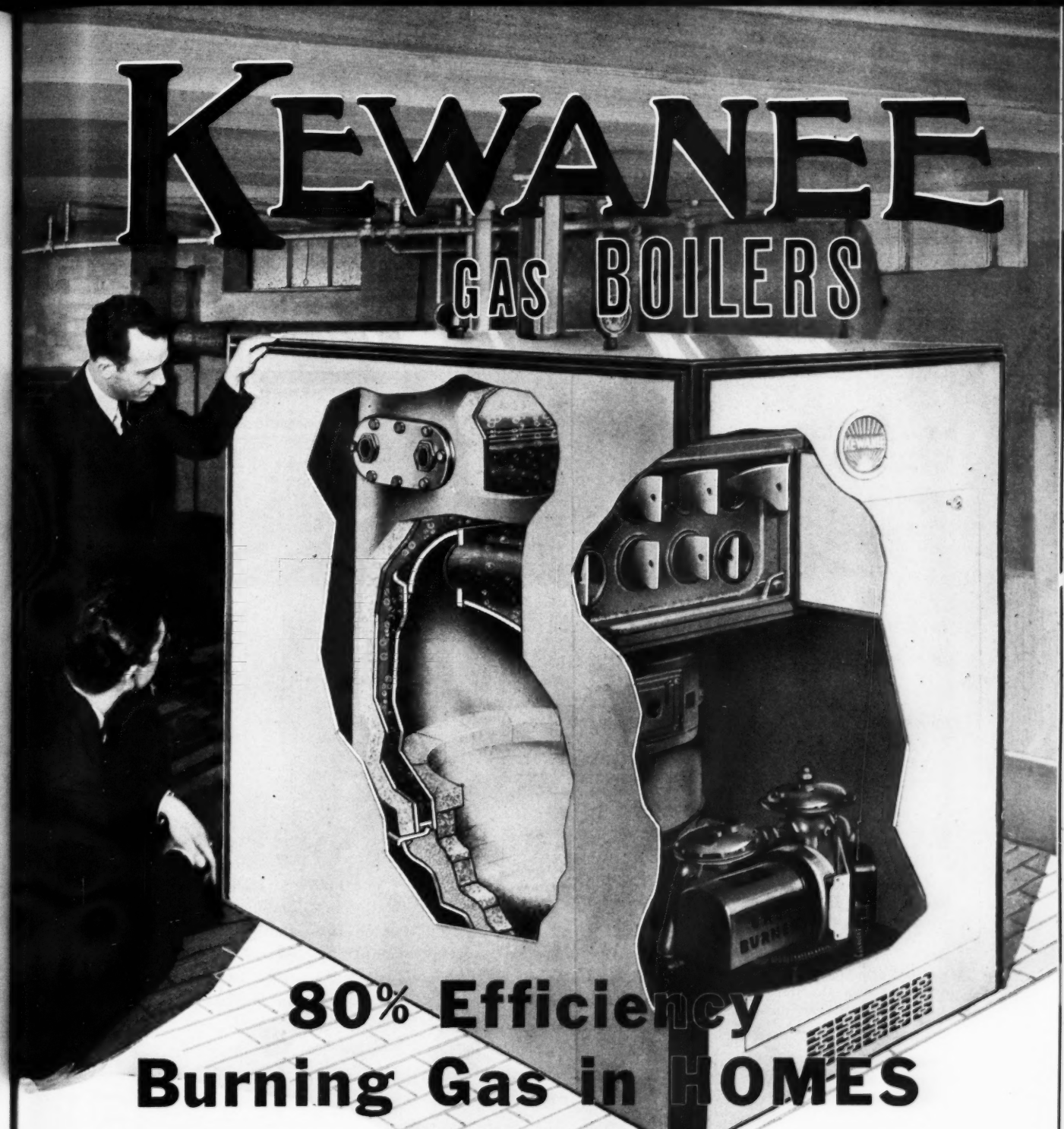
Below is the Institute's new $300,000.00 Laboratory and Shops, made necessary by the increasing demand for R-A-C-I Trained men. It is expected that this new building will be available for student training by August 1, 1938, which means—ready for those enrolling for Training now.



REFRIGERATION & AIR CONDITIONING INSTITUTE

2130-2158 LAWRENCE AVENUE . . . . . CHICAGO, ILL.

KEWANEE
GAS BOILERS



80% Efficiency
Burning Gas in HOMES

The result of 69 years' experience in building heating boilers, every Kewanee intended for Gas is especially designed and proportioned to get the best out of the burner... employing all the available heat in warming the building.

This greater efficiency provides that difference in performance which ***insures a definitely satisfactory gas heating installation.***

Kewanee Residence Boilers for Gas Heating are available in Round and Square Types . . . for 625 to 4200 square feet of radiation . . . in practical close-fitting jackets . . . Smartline Rex Jackets . . . or in Smartline Regal Jackets (pictured above) to completely enclose boiler and burner.

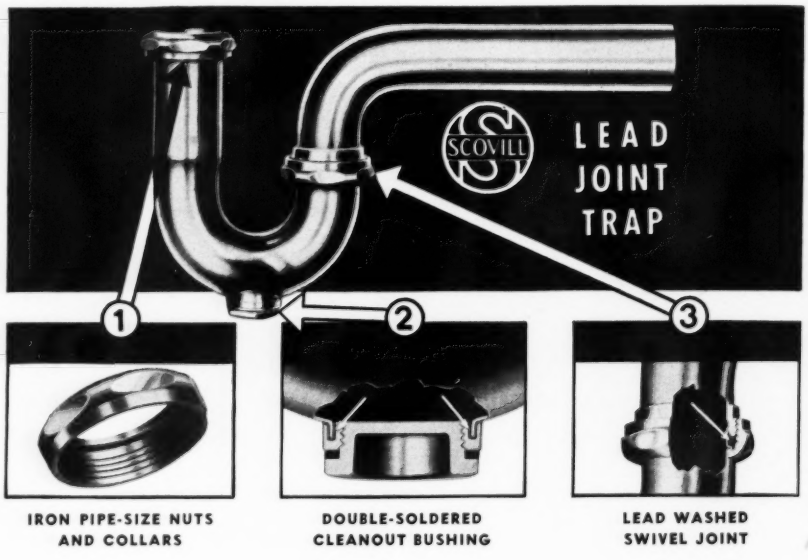
Circular GA-92A describes them. Ask for it and a list of 1000 Kewanee Gas Installations
FOR LARGER BUILDINGS ALSO

KEWANEE BOILER CORPORATION
KEWANEE, ILLINOIS
Eastern District Office: 37 West 39th Street, New York City
BRANCHES IN 61 CITIES
division American Radiator & Standard Sanitary Corporation

SCOVILL

SCOVILL'S WATERVILLE DIVISION — A complete line of Plumbers' Brass Goods — Traps, Supply Pipes, Bath Wastes, Showers, Sink and Tray Wastes, Flush Valves, etc.

• THE Scovill lead joint trap embodies three important improvements which make it outstanding in the field. Scovill has never made a better tube trap — and this means that they will be more profitable for you. The illustration clearly shows these improvements.



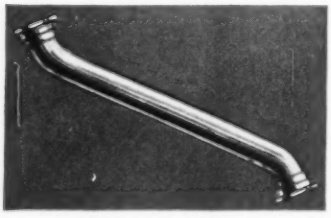
IRON PIPE-SIZE NUTS AND COLLARS

DOUBLE-SOLDERED CLEANOUT BUSHING

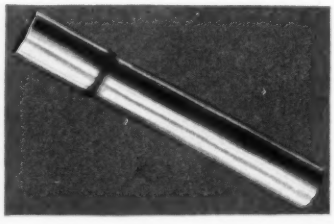
LEAD WASHED SWIVEL JOINT

SCOVILL BRASS PIPE AND COPPER TUBE

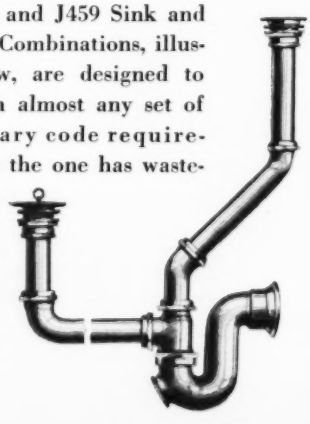
• Because Scovill Brass Pipe has just the right amount of lead alloyed in it, you'll find it the fastest cutting, cleanest threading pipe that you've ever worked. Rigid supervision of every step of its manufacture guarantees uniform quality.



• Scovill Copper Tube is famous for its quality and uniformity, caused by its manufacture by a special process (patents pending in U. S. and foreign countries).



• The J458 and J459 Sink and Wash Tray Combinations, illustrated below, are designed to comply with almost any set of local sanitary code requirements, since the one has wasteline in the seal and the other the wasteline higher than the seal.



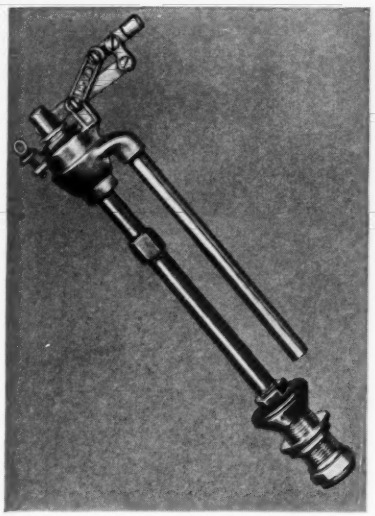
SCOVILL

WATERVILLE DIVISION • WATERVILLE, CONNECTICUT

QUALITY THROUGHOUT

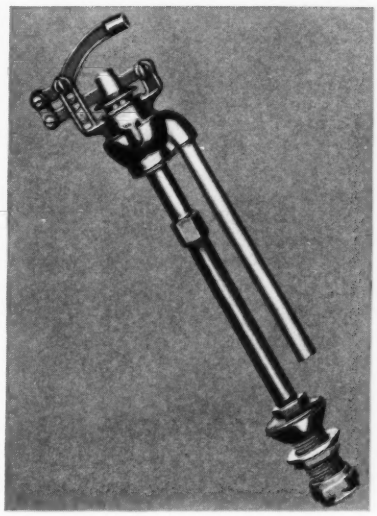
SCOVILL'S MORENCY-VAN BUREN DIVISION — A complete line of carefully designed and manufactured closet and tank fittings. The three M-VB Ballcocks illustrated and described below are representative of M-VB value. You can purchase standard tanks equipped with these ballcocks, knowing that you get the very best in design and workmanship. In this way you make sure of easy installations and satisfied customers.

No. 18 ELEVATED BALLCOCK



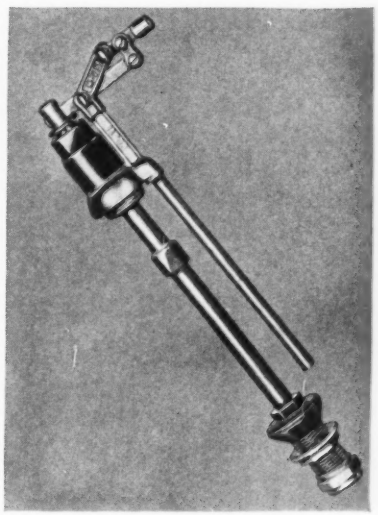
• Economical, with six plus-value features: 1. Quiet operation (adjustable 5 to 200 pounds pressure). 2. Rapid refill at low pressures. 3. Hard rubber regulator eliminates 50% of corrosion troubles. 4. Regulator is easy to get at and can't freeze into valve body. 5. Plunger has full bearing for entire length. 6. Extra-powerful leverage makes installing in close tanks easy.

No. 6-A ELEVATED BALLCOCK



• This semi-silent ballcock has so many features that it has come to be the standard by which all others are judged. It has a special bronze seat cast integral with upper part of the supply tube. It has a two-part plunger, with the lower part acting as a skirt around the seat to slow the whirling motion of the water entering the tank through body. Exclusive M-VB seat washer.

No. 11 ELEVATED BALLCOCK



• Quiet, smooth action without the usual closing-off noise is one of the big features of this ballcock. Special composition long-life inverted cup washer. Upper section of body made of hard rubber to afford full bearing for plunger, without corrosion or sticking. Its powerful leverage makes for ease of installation — an ideal ballcock for replacement purposes.

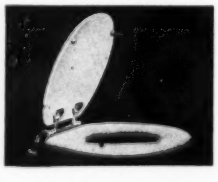
FULL STOCKS AT STURGIS, MICHIGAN • SAN FRANCISCO AND LOS ANGELES, CALIF. • WATERVILLE, CONNECTICUT

MANUFACTURING COMPANY

MORENCY-VAN BUREN DIVISION • STURGIS, MICHIGAN

MANUFACTURERS and merchants spend millions of dollars a year to court her favor. Naturally; she buys in billion dollar quantities — means big business for the man who gets her OK on his product or service. It will pay *you* to cultivate her. She is the housewife — purchasing agent for America's biggest business — homemaking.

Certainly you have a story that will open her purse strings . . . a story on bathroom beauty. Tell her how easily she can brighten up the bathroom with a new CHURCH SEAT . . . how their many lovely colors, in plain or pearl finish, harmonize with other bathroom accessories. Show her how easy CHURCH SEATS are to clean. How permanent the *sheet covered* finish is. How, despite their many advantages, *they cost no more than others.*



And it is an exclusive story for you — for CHURCH SEATS are sold only by Master Plumbers. They are an entering wedge to many extra plumbing jobs. They help you get new business right in your own neighborhood! Send today for copies of the new booklet, "Bathroom Magic" which illustrates 24 different color schemes for home bathrooms. It's a wonderful help in talking to women. Write to Dept. P-11, C. F. CHURCH MFG. CO., HOLYOKE, MASS., *Division of American Radiator & Standard Sanitary Corporation.*

Only the Master Plumber sells

CHURCH SEATS

THE ENTERING WEDGE TO GREATER SALES

LOOK FOR THIS

Written Guarantee

WHEN BUYING

PIPE WRENCHES

It is your assurance of 100% Heavy Duty Alloy Steel construction — drop forged and heat treated for extra strength—AT NO INCREASE IN PRICE!

DROP FORGING PROCESS

The strongest known method of making quality steel tools—and the reason for the "built-in" quality which permits Trimo to guarantee the WHOLE WRENCH.

★

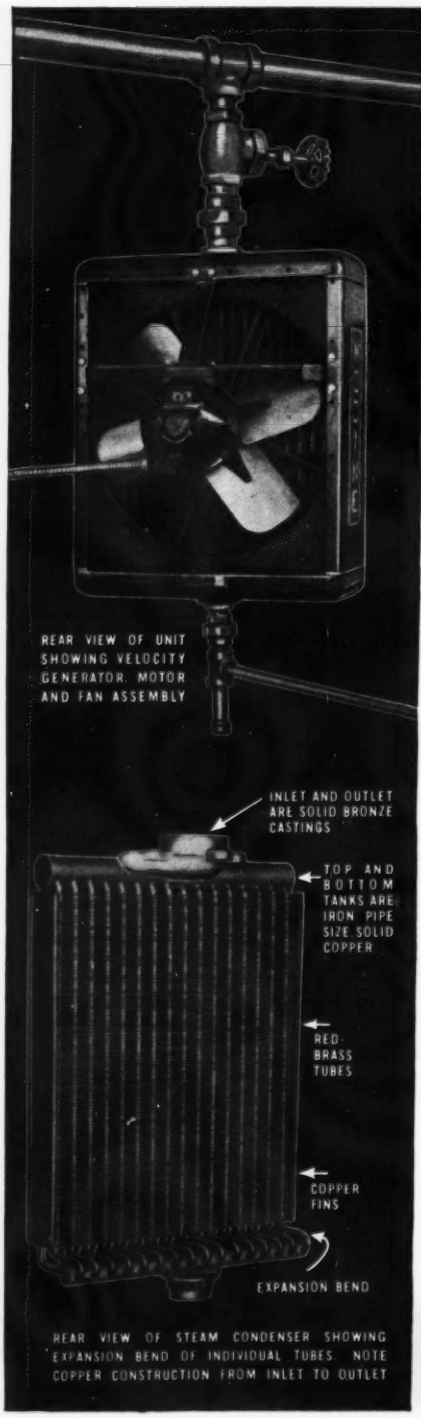
This tag—wired to the handle of every genuine "TRIMO-ALLOY" tool —is your assurance that you are buying the strongest, safest pipe wrench ever made—yet "TRIMO-ALLOYS" **cost no more.**

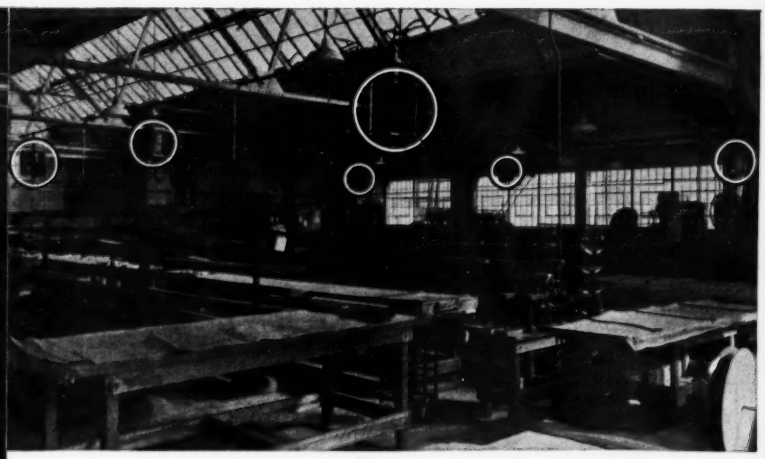
"TRIMO

Guarantees The WHOLE Wrench"

TRIMONT MFG. CO., INC.
Roxbury (Boston), Mass.

Other people may make Unit Heaters . . . but they can't make MODINES


REAR VIEW OF UNIT SHOWING VELOCITY GENERATOR, MOTOR AND FAN ASSEMBLY
INLET AND OUTLET ARE SOLID BRONZE CASTINGS
TOP AND BOTTOM TANKS ARE IRON PIPE SIZE, SOLID COPPER
RED BRASS TUBES
COPPER FINS
EXPANSION BEND
REAR VIEW OF STEAM CONDENSER SHOWING EXPANSION BEND OF INDIVIDUAL TUBES. NOTE COPPER CONSTRUCTION FROM INLET TO OUTLET



● More Modines are being sold than any other propeller type unit heater—because exclusive Modine design, construction and performance superiorities make Modine the outstanding unit heater.

The Modine condenser is far stronger structurally. Inlet, outlet, tanks, tubes, and fins are *all-copper or copper alloy*. All steam-carrying passages, *cylindrical* for excess strength, are welded and brazed into a single structure that *cannot leak* under high pressures or temperatures. *Expansion bend construction*, exclusively Modine, gives each tube knee-joint movement to expand or contract independently. The condenser design, plus *velocity generators* and other exclusive Modine air control features, assure far more effective and economical heat distribution. Fuel savings are 25% and more. Modine-patented *direct-from-supply line suspension* saves you time, labor and money in installing.

When you sell Modines you have the reputation and resources of a pioneer manufacturer back of you and the active help of a sales and engineering organization unmatched in the industry. Write for *Catalog 137*.

MODINE MANUFACTURING COMPANY
1722 RACINE STREET ● RACINE, WISCONSIN
HEATING, COOLING AND AIR CONDITIONING EQUIPMENT FOR COMMERCIAL, INDUSTRIAL AND RESIDENTIAL APPLICATION

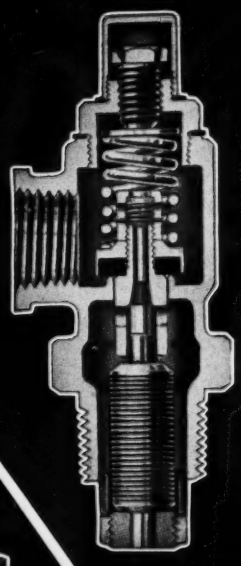
MODINE UNIT HEATERS

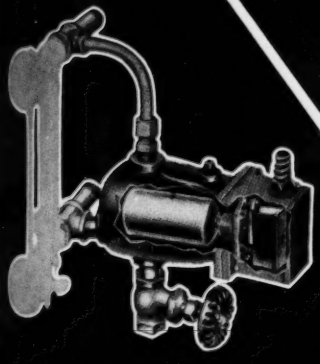
OR PROFIT AND PRESTIGE SELL WATTS

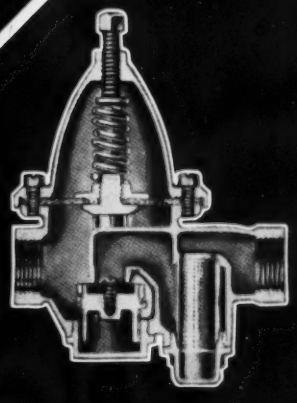
The Line That Talks Plenty Business and Bigger Profits

. . . the LINE that's built of BRONZE AND FINE MATERIALS machined and assembled like precision instruments YET priced with units of ordinary design and manufacture.

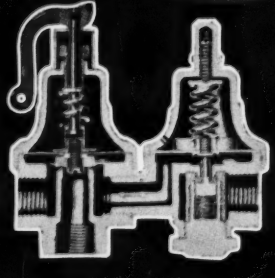
THE MOST COMPLETE LINE OF ITS KIND IN THE WORLD

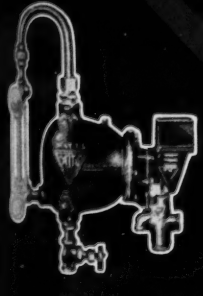


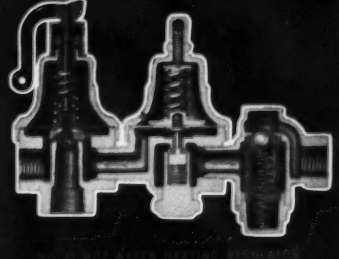




WATTS Safety DEVICES







LL WATTS..CENTRALIZE YOUR BUYING

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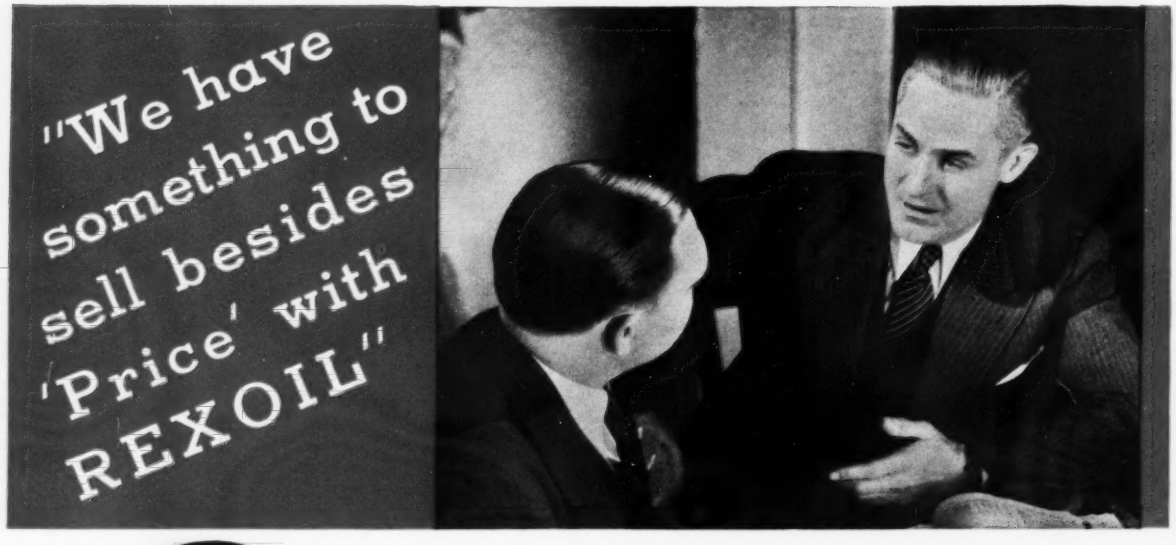
BUY FROM YOUR LOCAL JOBBER



REXOIL OIL HEAT
WITH PATENTED FUEL-HOARDING TURBULATOR

● "We nearly lost our shirts in the oil heating business," a prominent distributor told us, "before Rexoil gave us something to sell besides price. While Rexoil sells for very little more than the cheapest oil burner built, there are so many plus features to offer the customer with Rexoil that it's almost like offering Lincolns at the price of Fords. We advise any oil burner distributor to investigate Rexoil." Here are the 4 big PROFIT MAKERS:

PROFIT MAKER 1 — CLEAN, HOT FIRE — NO WASTE Only in Rexoil can you get genuine air stream turbulation—a patented development which effects fuel savings of 20 to 30 per cent. No wasted fuel, and a cleaner, hotter flame.	PROFIT MAKER 3 — QUICK CUT-OFF FUEL HOARDER The traffic cop that watches the flow of oil—controls every drop so that none may be wasted. Cuts off the fuel supply during an emergency, or a normal shut-down.
PROFIT MAKER 2 — LOWER HEATING COST The famous Rexoil Flame of Flames represents an unparalleled engineering achievement in accelerated combustion—a super-charged intense heat!	PROFIT MAKER 4 — INCREASED EFFICIENCY This exclusive Rexoil device forever dispels the possibilities of make-shift adjustments and is a guarantee for the development of the full rated capacity of the boiler or furnace.

NEW FREE STACK WATER PRE-HEATER
(Leidig Patent Pending)
Automatic Hot Water at No Fuel Cost
. . . Waste Chimney Heat Does the Job
Fits any furnace—Easy to install—Extra Profits
Write for prices and specifications.

If you are open for a better burner proposition—write Rexoil now.

REIF-REXOIL, INC., 35 Carroll St., Buffalo, N. Y.
Manufacturers of Rexoil Conversion Burners, Boiler Units, Furnace Units and Direct Fired Conditioners

With all its Advantages Rexoil Costs You NO MORE

SILENT KNIGHT OF THE HEATING SYSTEM

SLATER VALVES INSURE *Equalized Heat*

"EQUALIZED HEAT" throughout the heating system, as you heating men know, is possible only when the vacuum is broken at every heating cycle. This properly equalized distribution of heat is assured in all automatically fired heating systems, when you install the SLATER, *the valve that is built to break its own vacuum.*

SLATER engineers discovered long ago that ordinary valves perform this vital function only under the most favorable of conditions. Since this discovery they have bent their entire resources to the design and construction of a valve that would break its own vacuum under every type of condition. The results of their efforts are crystallized in this new line of vacuum valves that are BUILT TO BREAK THEIR OWN VACUUM. Tests and experiments have proven their ability under all conditions to insure an even, desirable flow of heat to every radiator on the heating system.

The cross-sectional view to the right of a typical SLATER Vacuum Breaking Valve explains for itself the story that every heating man knows. It tells at a glance the part that science and engineering skill have played in its design and construction. Note the list of superior features that are carefully, painstakingly built into SLATER Valves.

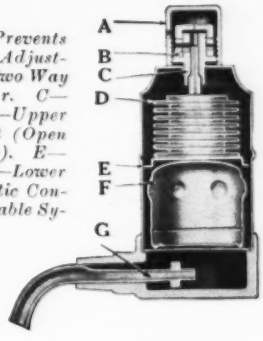
Specify SLATER Dual Float Vacuum Regulator Valves with the vacuum breaking feature for every radiator; your customer will thank you for the complete satisfaction they bring to him, and will become your most enthusiastic booster.

Write today for the complete details.

SLATER MANUFACTURING CO.
24 WATER STREET WAKEFIELD, MASS.

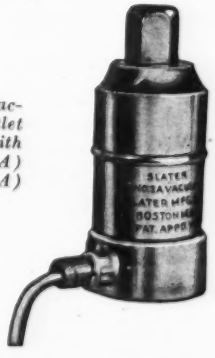
U. S. Distributor: SMITH & DALE
457 STUART STREET BOSTON, MASS.

Sold only through recognized wholesalers.



A—Vent Lock—Prevents Tampering with Adjustment. B—New Two Way Vent Regulator. C—Large Orifice. D—Upper Corrugated Float (Open to Atmosphere). E—Float Guide. F—Lower Float (Thermostatic Control). G—Adjustable Syphon.

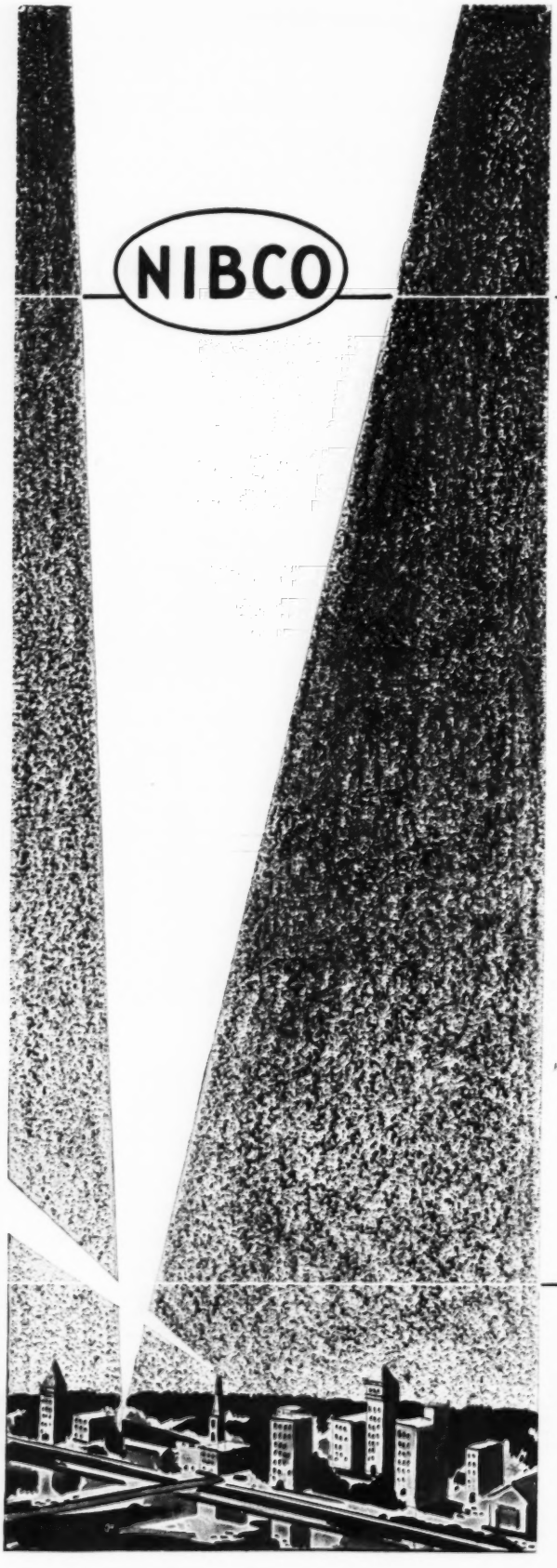
At the right is the No. 1A Non-Vacuum Valve, Side Outlet ⅛". Also available with straight shank, ¼" (3A) and ⅜" and ¾" (5A) bottom outlet.



This is the No. 2A Vacuum Valve, Side Outlet ⅛". Also available with straight shank, ¼" (4A) and ⅜" and ¾" (6A) Bottom Outlet.

Slater

DUAL FLOAT VACUUM REGULATOR VALVES
PLUS VACUUM BREAKERS



LIGHTING THE WAY TO TOMORROW

Better plumbing — an essential part of man's progress toward more universal health and happiness — is the product of two factors. There must be men who are competent, honest and sincere in their efforts to improve the standards of their chosen field. And those men must have materials with which to carry out their ideas and ideals.

NIBCO is proud of its record of putting worthy materials into competent hands. It has borne its share of the task of leadership, too, for it has contributed new ideas and new methods to the plumbing profession. NIBCO pioneered the copper fittings now so widely used in house plumbing; NIBCO raised the standard of tank fittings to the dignity and dependability of a trade-mark and a printed carton.

In the last few years, NIBCO has sought to open a new and wider field for plumbers everywhere, by carrying the house plumbing into the lawn in the form of underground irrigation, thus making available more employment and more sales for plumbers. This newest effort has already demonstrated its effectiveness, and those who have participated are enjoying its benefits.

NIBCO is constantly at work to improve and develop not only its products, but the possibilities of the plumbing business as a whole. What tomorrow will bring, no man knows, but the trade-mark NIBCO will light the way.

NORTHERN INDIANA BRASS COMPANY

ELKHART INDIANA

NOW! IS THE TIME *to cash in on* DEMING WATER SYSTEMS

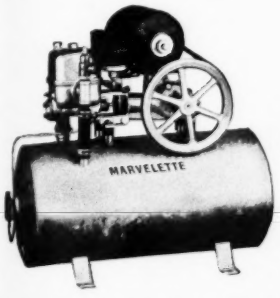


FIG. 1975 "MARVELETTE" FOR SHALLOW WELLS

Capacity: 250 gallons per hour

A popular, fast-selling water system. Provides low cost running water for small suburban and country home, summer cottage, wayside restaurant, tourist camp, etc. etc. ● Features: Noiseless (you can't hear it run!)... Full cushioned power (pump mounted on rubber cushions)... Repulsion-Induction motor... Stainless steel piston rod... Drop-forged crankshaft ...Automatic oiling system... Many other features.

Make sales while the sun shines! Winter's on its way! People who have delayed buying electric water systems are now hurrying to avoid going through another winter without running water! With the Deming line you can meet *every* requirement for a shallow or deep well system of correct capacity at the right price. Furthermore, you have more convincing advantages to offer when you sell Deming Water Systems... QUIET OPERATION... DEPENDABLE PERFORMANCE... LOW COST UPKEEP ... all assured by correct engineering principles and highest quality materials that mean GREATER VALUES for YOUR customers! Write TODAY for complete information and catalogs explaining many more features.

FIG. 2090 "MARVEL" FOR SHALLOW WELLS

Quiet operation. Timken Roller Bearings on crankshaft. Ball Bearings on crank end of connecting rod. Cap. 275 to 600 gals. per hr.

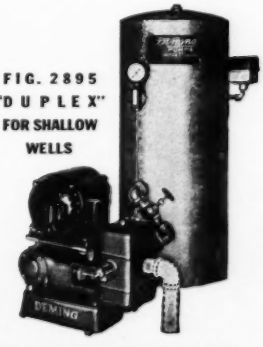


FIG. 2895 "DUPLEX" FOR SHALLOW WELLS

Timken Roller Bearings. Drop Forged Crankshaft. Quiet in operation. Stainless steel piston rods. Cap.: 500 to 1800 gals. per hr.

FIG. 562 "WORM-DRIVE" FOR DEEP WELLS

Hardened steel worm. Phosphor bronze worm gear. Ball bearings on crankshaft; all parts fully enclosed. Cap.-105 to 1140 gals. per hr.

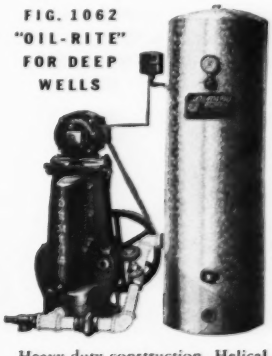
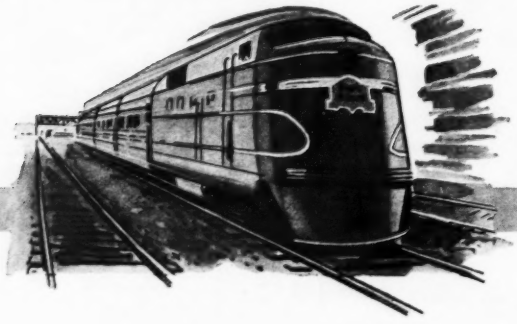


FIG. 1062 "OIL-RITE" FOR DEEP WELLS

Heavy duty construction. Helical cut gears. Force feed lubrication. Separate discharge casting. Cap.: 105 to 3600 gals. per hr.

THE DEMING COMPANY • SALEM, OHIO

MANUFACTURERS OF DEPENDABLE PUMPS AND WATER SYSTEMS SINCE 1880



CONTROLS *Guard*

SAFETY, ECONOMY and COMFORT

Accurate and dependable control is one of the outstanding characteristics of the new Chicago, Rock Island & Pacific Rocket Trains which open a new epoch in rail transportation.

Both the comfort of the Rocket's passengers and the safety of its powerful engines are protected by modern automatic control equipment.

It is significant that "Genuine Detroit" Controls were selected for both these purposes. The air conditioning system includes No. 783 Thermostatic Expansion Valve together with No. 250 Dual Pressure Controls. A No. 250 Series Temperature Control notifies the engineer of any excess motor temperature. Another similar unit operates an air damper for automatically cooling the motor. Two No. 250 RB-3 Controls, one on each of the engine's lubrication systems, inform the engineer immediately when the oil pressure drops below a stated safe minimum.

Consistent accuracy, long and dependable service, are always assured in "Genuine Detroit" Controls.

DETROIT LUBRICATOR COMPANY

DETROIT, MICHIGAN, U. S. A. • 5900 TRUMBULL AVE.

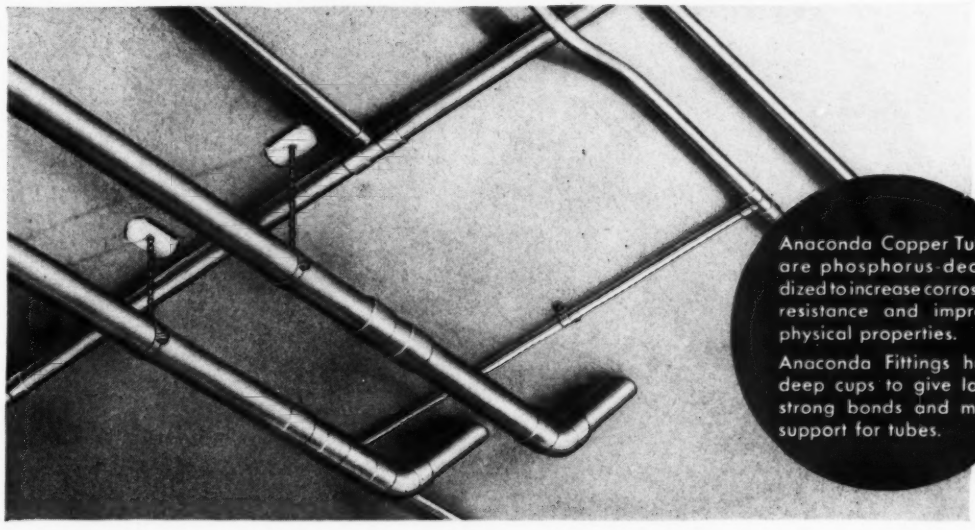
NEW YORK, N. Y.—40 WEST 40th ST. • CHICAGO, ILL.—816 S. Michigan Ave.

DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

Canadian Representative—RAILWAY AND ENGINEERING SPECIALTIES LIMITED, Montreal, Toronto, Winnipeg

GENUINELY ECONOMICAL

...For Heating Lines


Anaconda Copper Tubes are phosphorus-deoxidized to increase corrosion resistance and improve physical properties.
Anaconda Fittings have deep cups to give long, strong bonds and more support for tubes.

Anaconda Copper Tubes cost little more than rustable piping yet have advantages that make them worth far more

HERE'S the best value and the most attractive appearance in piping for hot water heating installations with forced circulation.

Reduced resistance to flow. The permanently smooth interiors of copper tubes and fittings reduce friction . . . give 10% to 15% greater velocity of circulation with the same head.

Smaller-size tubes. The faster flow through copper makes it possible to use smaller-size tubes and fittings.

Heat losses are less. Usually, the heat given off by uninsulated copper lines is no more than desirable for heating the basement.

Cost little more. An installation of Anaconda Copper Tubes and Fittings costs very little if any more than piping that rusts.

Anaconda Copper Tubes and Anaconda Solder-type Fittings in sizes from ⅛" to 8" are available at leading supply houses. There is an Anaconda copper-tube fitting for *every* heating requirement.

ANACONDA
from mine to consumer

Anaconda DEOXIDIZED Copper Tubes

THE AMERICAN BRASS COMPANY · GENERAL OFFICES: WATERBURY, CONNECTICUT

Offices and Agencies in Principal Cities · In Canada: ANACONDA AMERICAN BRASS LTD., New Toronto, Ontario

Behind These Doors Opportunity Awaits You!

FIFTH
INTERNATIONAL HEATING &
VENTILATING EXPOSITION
NEW YORK N.Y.
January 24-28-1938

An Outstanding Industrial Exposition

Practically every leading manufacturer of heating, ventilating and air conditioning equipment will be represented with impressive exhibits.

•

Scores of exhibiting companies whose products are auxiliary to the principal industries will also participate.

•

Three floors of Grand Central Palace, the best known industrial exposition building in the world, will be used.

•

Sponsored by the American Society of Heating & Ventilating Engineers whose 44th Annual Meeting is held the same time.

•

Meetings of the American Society of Refrigerating Engineers and the National Warm Air Heating & Air Conditioning Association will also be held.

•

Managed by the International Exposition Company, the same management as the four preceding expositions.

A WELL-BALANCED presentation of the latest improvements in modern heating, ventilating and air conditioning will be at your command for five days of profitable study when the Fifth International Heating and Ventilating—Air Conditioning—Exposition opens, January 24th, in the Grand Central Palace.

Exhibits of outstanding value to you and your associates will mark this exposition as one of the most important events of the year. Many interesting and educational demonstrations of the latest equipment available for summer and winter air conditioning will be offered—new and improved heating and ventilating systems will be on display.

Keep abreast with the modern demands in commercial, industrial and domestic construction by visiting

The Air Conditioning Exposition

5th INTERNATIONAL HEATING & VENTILATING EXPOSITION

GRAND CENTRAL PALACE • NEW YORK, N. Y.

JANUARY 24-28, 1938

7884

The Big Valve by LITTLE

THE M.S.Little MANUFACTURING COMPANY

Creates Sales Appeal—

its smooth graceful lines denote quality, and the name of its manufacturer—reliability in construction made for a long life. No. 3A Adjustable, shown at left, is only one of the SURE HOT Line of Air Valves—modern in design—adjustable and non-adjustable air port—vacuum and syphon types in all classes and each with Factory Tested Construction . . . Display SURE HOT Air Valves—they create quick sales and profitable ones.

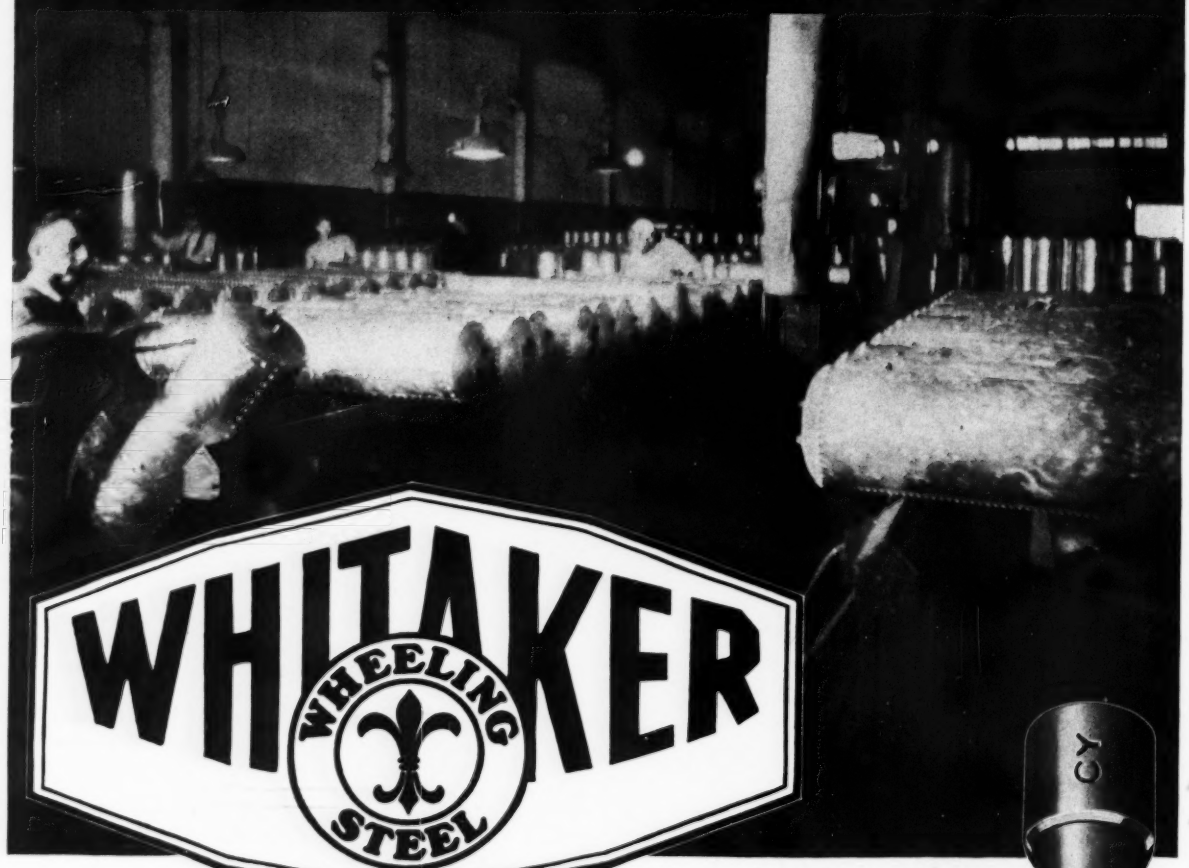
Have you enough "Heating Specialties" Catalogs? Yours for the asking—WRITE Today.

Products of

THE M. S. LITTLE MFG. CO.

HARTFORD : : : : : CONNECTICUT

THE *Best Known Name* IN RANGE BOILERS



WHITAKER

WHEELING STEEL

Whitaker gives you automatic arc welding of all seams for uniform penetration the full length of the weld. Side seams are rolled to reduce porosity. Head and bottom material is sufficiently thick that openings may be swaged or extruded from the base metal. Perfect drainage and freedom from sediment accumulation is assured by the Whitaker Patented Star Bottoms. And a specially compounded coating of pure zinc is applied by Wheeling's hot-dip process on a base of COP-R-LOY for extra durability and better appearance. *Sold only through recognized jobbers* of plumbing and heating supplies. Specify Whitaker in ordering from your jobber . . . *It's Wheeling Steel.* Wheeling Steel Corporation, Wheeling, West Virginia.

COP-R-LOY

Your distributor can supply you with COP-R-LOY *Pipe . . . black and galvanized, made of Wheeling's famous copper alloyed steel for long dependable service*

IT'S WHEELING STEEL

4 WAYS TO SMARTLY TRIMMED BATHROOMS

"Standard" QUALITY FITTINGS

IN ADDITION to the extra care given in the selection of materials, methods of manufacture and mechanical construction for efficient operation, **"Standard"** has devoted especial attention to beauty of design. Here are illustrated four distinct varieties of Trim—*Neo-Classic, Waldorf, Colonial and Standard*—each is beautiful, each in appearance and quality matches the **"Standard"** Plumbing Fixtures for which they are made. The four designs offer a wide choice and are highly individual in the sense that they enable one to carry out a conception of a decorative scheme. And to give that whole decorative scheme unity, fittings for bath, shower, lavatory and closet are made in these same four designs.

Complete information on "Standard" fixtures and the new lines of brass is contained in the new "Standard" General Catalogue.

NEO CLASSIC TRIM

The artistic worth of this design is outstanding . . . compelling. Its classic straight lines and receding planes adapted to modern construction make this trim truly Neo-Classic.

COLONIAL TRIM

A beautiful blending of curved lines, with concaved cone of the escutcheon rising to new and more pleasing height . . . that is the Colonial Trim. Conservative but not common; distinctive but not too unusual, is this rich design of a pleasing simplicity.

WALDORF TRIM

Here we have the latest, most artistic rendering of the popular hexagonal motif. It is very appropriate on all cut-off corner design fixtures, though it blends well with all **"Standard"** Fixtures.

STANDARD TRIM

This is the design of universal appeal. In its designing the artists kept in mind the specification of a modern, beautiful rendering for attractiveness and pleasing harmony with any **"Standard"** Plumbing Fixture.

"Standard"
PLUMBING FIXTURES
COST NO MORE THAN OTHERS

Standard Sanitary Mfg. Co.

PITTSBURGH, PA.

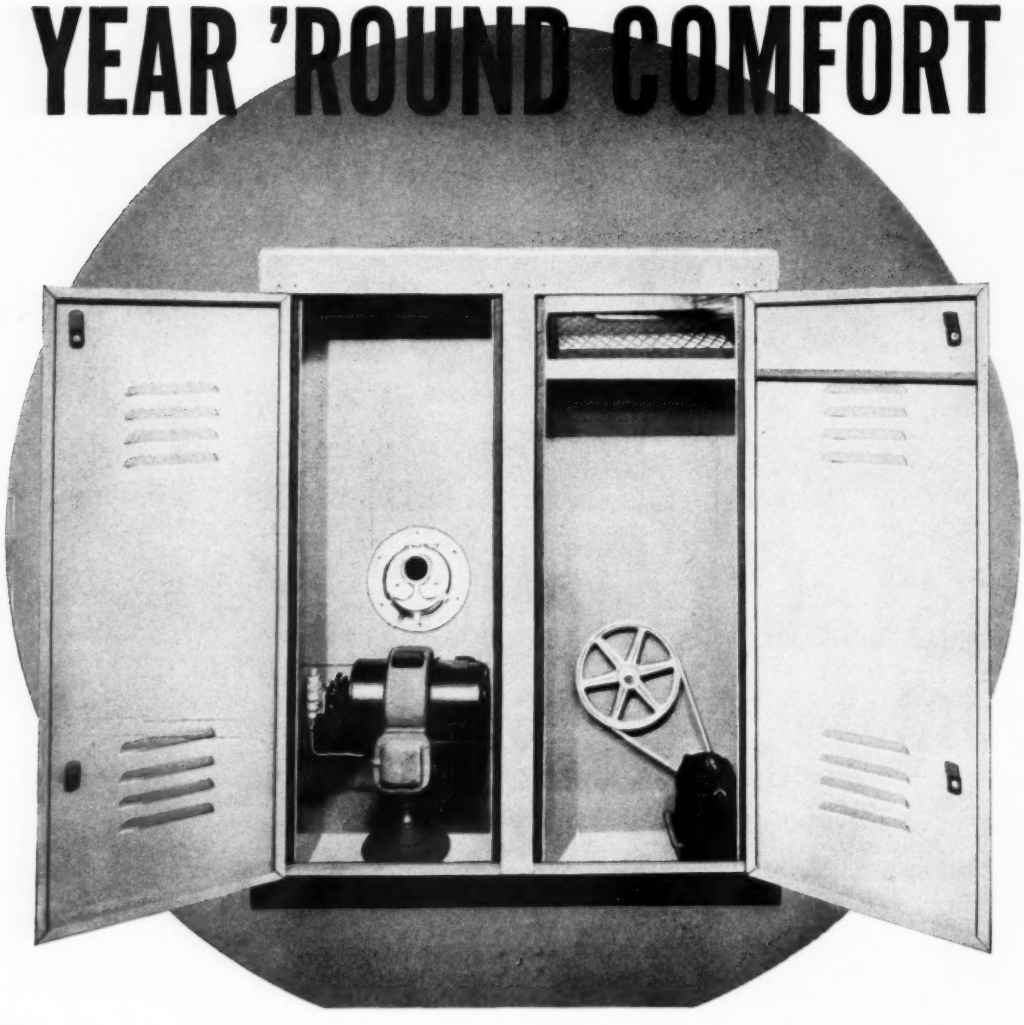
Division of AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

Copyright October 1937, Standard Sanitary Mfg. Co.

This Modern Automatic Heating Unit

meets today's demand for

YEAR 'ROUND COMFORT



BUYERS of today demand healthful, luxurious warmth in every room . . . automatically controlled without the muss and fuss of hand-firing. That's why Capitolaire is easier to sell—surer to stay sold. Capitolaire is a deluxe conditioning unit. Entirely automatic in operation, it heats the air, cleanses it, humidifies it and forces it into every nook and corner of the house. Designed to burn oil economically and backed by one of the oldest names in heating, Capitolaire assures full benefit from every heating dollar. ¶ Capitolaire has large filtering surface for maximum cleaning efficiency. Ample radiator surface and correctly proportioned flue passages to assure low stack temperatures. Capitolaire offers slow-speed, oversize blowers, mounted in live rubber for quiet operation. It is riveted and welded leakproof . . . enclosed in a heavy steel cabinet with rounded corners and handsomely finished in two-tone enamel, styled to beautify modern basements. Write for complete information today.

CAPITOLAIRE

DIVISION · U. S. RADIATOR CORPORATION

General Office, Detroit · Branches and Sales Offices in Principal Cities

A good many million families in this country are friends of mine.

I have helped them acquire automobiles, refrigerators, heating equipment, washing machines, and many electrical appliances. Thousands of dealers profited by my assistance in making these sales. You can profit by it, too.

When these same millions and other families come to buy heating equipment they're going to think of me. If they find me working for you, you're going to find it easier to sell them.

Why? Because they know that the charge for my financing is fair . . . because my collection service has been courteous and considerate. I have their good-will. I know how to hold it for the dealers I work with.

I protect my dealers in other ways, too. I give them a smooth, non-irritating, thoroughly efficient credit investigating service. Since I'm a specialist in consumer credit I can usually spot those risks that might cause trouble and a loss of profit. I make prompt remittances, keep collections regular.

I'm the local manager of a Commercial Credit office in your territory. I can do a lot to help you. Let's talk it over.

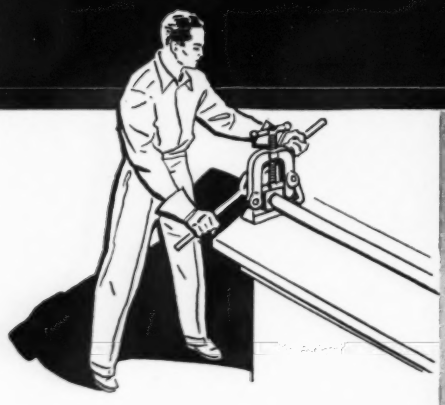
COMMERCIAL CREDIT COMPANY

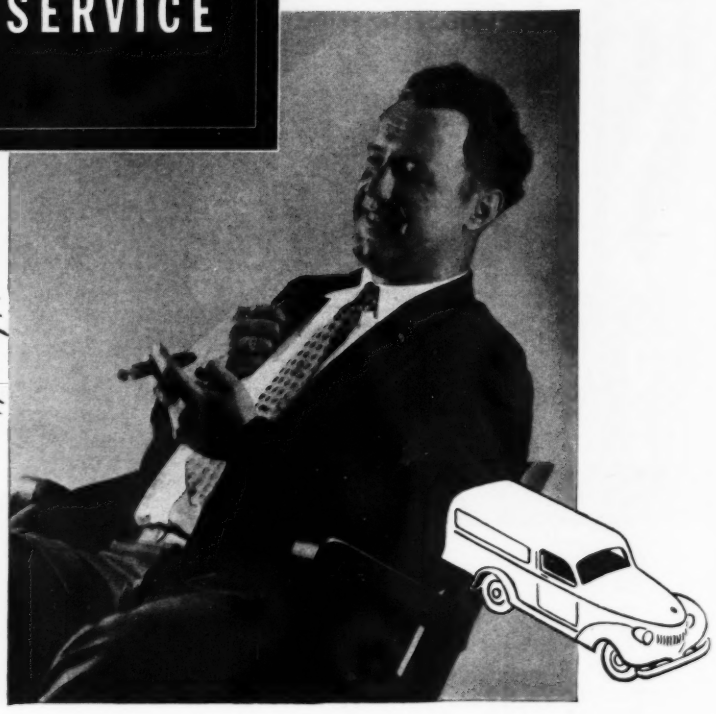
COMMERCIAL BANKERS • HEADQUARTERS BALTIMORE

CONSOLIDATED CAPITAL AND SURPLUS $65,000,000

SERVING MANUFACTURERS, DISTRIBUTORS AND DEALERS THROUGH 193 OFFICES IN THE UNITED STATES AND CANADA

HE PRIDES HIMSELF ON WORK AND SERVICE





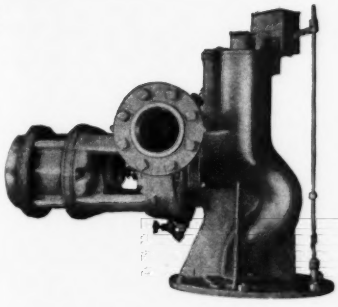
-but, Plumber, what of the Pipe?

Jobbers all over the country stock Fretz-Moon Steel Pipe in steel or rust-resisting copper-bearing steel—black or galvanized. If your jobber does not carry it—write us.

Good first-class work and unfailing service earn the respect of customers—build business—insure profits in the future. • But, Mr. Plumber, have you ever considered going a step further toward establishing sound business by giving better piping to your customers at no extra cost—and by using pipe that helps to strengthen the profit side of your ledger? • Many plumbers are doing just that with Fretz-Moon Pipe—the modern steel pipe made by the exclusive "continuous process" that eliminates all guess work from pipe making. Fretz-Moon Pipe is exceptionally uniform—sound in weld; clean and free from scale inside and outside; highly ductile, without hard or "burnt" spots; easy to bend without flattening; easy to cut and thread . . . and it comes to you with accurate, sharp threads on pipe and in couplings. The galvanized surface will not scale at bends. • Why not investigate this better steel pipe? . . . Ask your jobber . . . or write us for the full story.

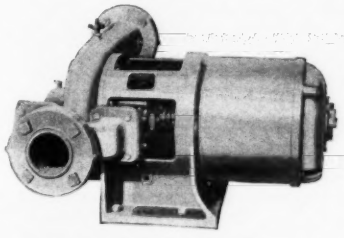
FRETZ-MOON TUBE CO., INC.
BUTLER • PENNA.

TRY FRETZ-MOON PIPE AND KNOW THE DIFFERENCE



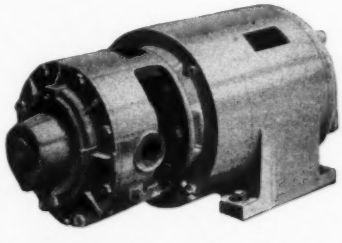
JENNINGS SUMP & SEWAGE PUMPS
PEDESTAL TYPE

Mounted entirely above the pit cover. Entirely self-priming. All working parts high and dry. Only suction pipe submerged. Economical.



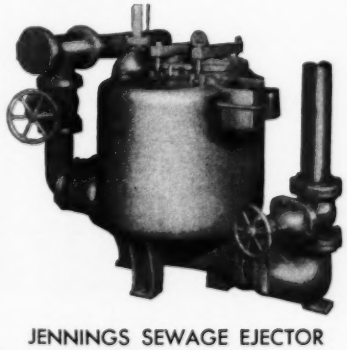
CENTRIFUGAL PUMPS
STANDARD AND SELF-PRIMING

Motor armature and pump impeller mounted on same shaft. No bearings in pump casing. One stuffing box. Simple, compact, reliable.



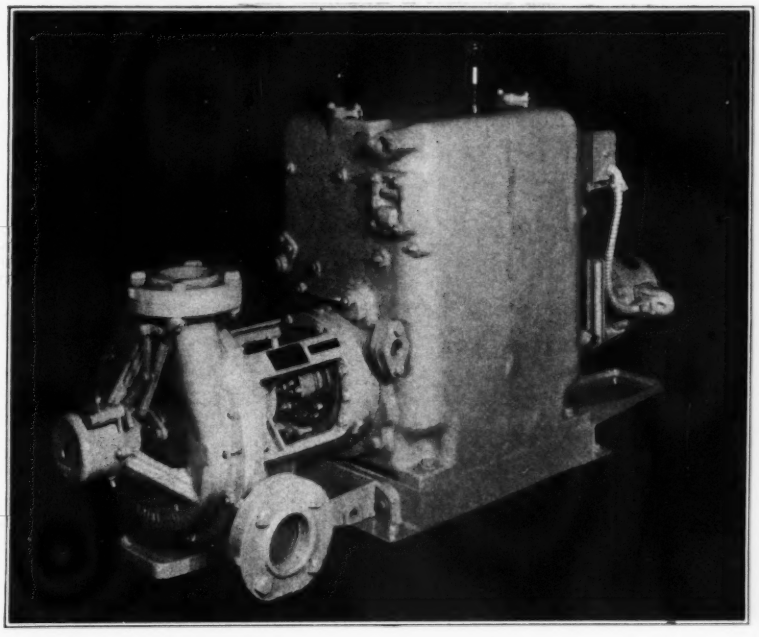
NASH HYTOR AIR COMPRESSORS

No sliding vanes, pistons nor parts in metallic contact. No internal lubrication. Non-pulsating. Clean air. Efficient and reliable.



JENNINGS SEWAGE EJECTOR

Most efficient device for pumping unscreened sewage from low levels, or pumping any heavy liquid with large proportions of solids.



Jennings Vapor Turbine Heating Pump. Operates directly from system steam without electric current. Constant operation assures uniform system operation. Steam used for operation is returned to system for heating with little heat loss. Eliminates current cost and effects material steam economy. Ask for Bulletin 246-A.

THERE IS A NASH
For Every Pumping Service

PERFORMANCE, QUALITY and SERVICE are the three fundamental reasons for the many thousands of successful installations of Nash Pumps.

PERFORMANCE is made positive by the most advanced ideas in Engineering Research, checked by individual performance tests on each and every pump.

QUALITY is maintained by the careful selection of the finest materials, fabricated by superior workmen under constant and rigid inspection.

SERVICE is assured by the resources and reputation of the Nash Engineering Company, and backed by a nation-wide network of sales and service offices.

NASH ENGINEERING COMPANY
SOUTH NORWALK, CONNECTICUT, U. S. A.

200 lbs. WORKING PRESSURE

with Sturtevant Speed Heaters!

PLUS *these other features*

EASY INSTALLATION

Handy malleable steel hangers supplied. Run in supply and return lines on the most convenient side.

ABSOLUTELY LEAKPROOF

Absolutely leakproof heating elements backed by our guarantee for all steam pressures up to 200 lbs.

MAXIMUM HEADROOM

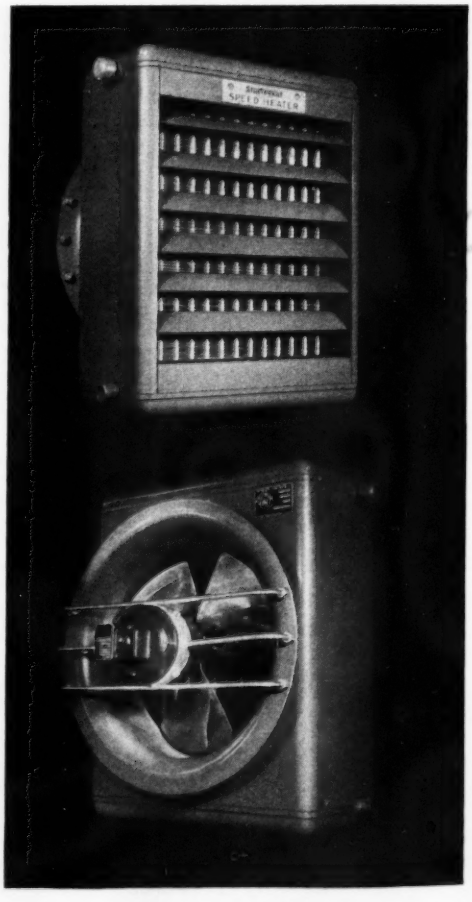
Flush with ceiling installation if necessary.

QUICK SHIPMENT

Get immediate shipment of popular voltages from a local supply.

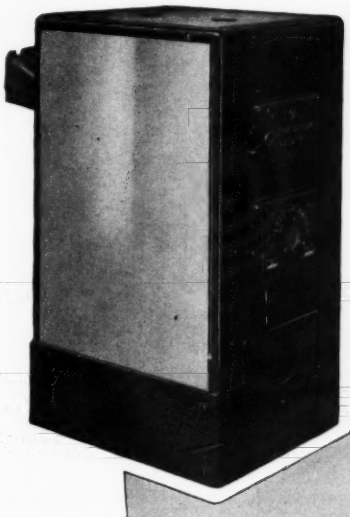
Made in a range of 10 sizes from 100 sq. ft. equivalent direct radiation to 1260 sq. ft. For single or multiple speed operation. Write now for all the facts.

B. F. STURTEVANT CO., Hyde Park, BOSTON, MASS.
Branches in 40 Cities B. F. Sturtevant Co. of Canada, Ltd. Galt, Toronto, Montreal



Sturtevant
REG. U. S. PAT. OFF.
Puts Air to Work

SPEED HEATERS ARE DISTRIBUTED BY CRANE COMPANY



PIERCE-EASTWOOD Boiler for either oil or coal with DeLuxe Flush Cabinet. Entirely automatic; thermostat control governs both the firing operations and the temperature. Orange-and-black jacket fully encloses the boiler, leaving the burner itself exposed.

Now

for either

oil or coal

the popular priced

PIERCE-EASTWOOD Oil-Burning Boiler with DeLuxe Extended Cabinet. The rich green cabinet completely encloses both the boiler and the burner. Brings beauty to the basement. A boiler backed by 98 years of Pierce heating engineering experience.

PIERCE-EASTWOOD *Sectional* BOILER

New Convenience Added to Time-Tested Efficiency

Famous design that has stood the test of years of rigorous use! Proved economy and efficiency that have won for the PIERCE-EASTWOOD a national reputation as *"the small home boiler with big boiler efficiency."* Now, all these important advantages, plus the new convenience and economy of a boiler that can be quickly changed from oil-fired to coal-fired.

And with either oil or coal, you get famous Pierce-Eastwood 3-way heat travel . . . Pierce-Eastwood scientifically designed flues that force the hot gases against all heating surfaces . . . insuring thorough use of the heat . . . a greater amount of heat delivered . . . a minimum of fuel burned to maintain any desired temperature.

PIERCE BUTLER RADIATOR CORP.
Syracuse, N. Y.

Conversion Oil and Gas Boilers
Ames High Pressure Boilers
Ames Una-Flow Engines
Coal-Burning Boilers
Oil-Burning Boilers
Stoker-Fired Boilers
Steel Boilers
Radiation

PIERCE
OIL-or-COAL BOILER

Mail this coupon today

PIERCE BUTLER RADIATOR CORP.
701 Nichols Ave., Syracuse, N. Y.

Please send without obligation—

☐ Folder and full information on the Pierce-Eastwood Sectional Boilers.

☐ Pierce Catalog showing the complete line of Pierce heating equipment.

Name.....

Address..... DE-N

"Domestic Engineering was splendid when I first became interested in it. Today . . . one might say that it is the direction finder for the individuals and groups who make up Our Industry."

G. W. C.
Kansas City, Mo.

Between Ourselves

Ideas and Ideals . . . which make up . . . this Issue . .

An Old Story, But a Good One

Some facts are so self evident that they may be disregarded or, at least, given less thought than they deserve. This has proved to be somewhat the case in the general regard for the value of cooperative effort. Every so often, however, a case develops which is a clear indication of just how much can be accomplished by a union of forces working for a common purpose.

Elsewhere in this issue is an article devoted to the cooperative advertising campaign which is being sponsored by the North Shore Plumbing Contractors Association in Chicago suburbs. While the campaign is still too recent for its full results to be realized, there has been a definite and healthy growth in the business of the participating members.

The campaign itself is a true example of cooperation and cooperative effort. It is aimed at doing an industry building job rather than merely to increase the business of the individual members. Each advertisement in the series which goes to make up the campaign stresses one of two things: the necessity for employing competent, licensed master plumbers in all plumbing work; or the bargain prices which now prevail for plumbing and heating products.

One concrete advantage which has accrued to all members from their cooperative action already is that each has benefited from larger sized advertisements than any single individual in the group would care to undertake for the considerable period which the campaign is to run.

Wide Interests; Wide Activities

There was a time when a certain portion of the public regarded a plumber as a mechanic and not a business man. This attitude has changed radically as a better understanding of the importance of modern plumbing has developed. Now the public looks on contractor-dealers as many sided business men who are able to correlate the numerous aspects of a complex profession.

For several months past DOMESTIC ENGINEERING has shown on its front covers, various business and recreational aspects of contractor-dealers throughout the country. This month's cover shows E. B. Kleine, past president of the Ohio State Association of Master Plumbers, on a hunting trip. Mr. Kleine thus represents a cross section of the men of our industry who are attracted by outdoor sports and find in them the relaxation necessary to keep going at the swift pace demanded by their business activity. This, then is further evidence of just how wide are the interests and activities of the men of our industry.

Day by Day Progress

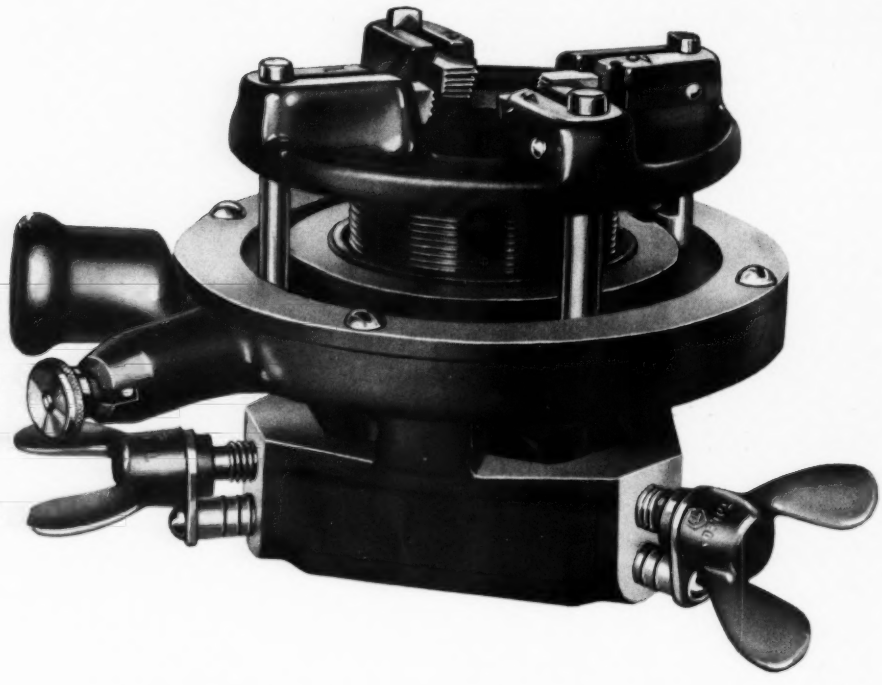
Undoubtedly one of the chief reasons why our industry continues its course of steady advancement is that the men and materials which go to make up the industry also follow a course of steady advancement. Progress that the industry registers is progress in health, leisure, comfort and convenience offered to the public in general.

One of the articles which is presented in this issue illustrates this point in reference to automatic heating equipment. The article points out that where formerly fire attendance and ash removal constituted a real bugbear for the home owner, today, advancements and refinements in the field have made it possible to hold equitable and satisfactory temperatures as long as a fire is maintained in the heating plant. This is evidence of how our industry has been able to grow and advance, for the products and services which plumbing and heating contractor-dealers have to offer add to, and make for, added comfort of living.

Your Editor

for removing
seepage water
PENBERTHY PRODUCTS
PENBERTHY AUTOMATIC
CELLAR DRAINER
(Water or Steam operated)
Made in 6 sizes
PENBERTHY AUTOMATIC
ELECTRIC SUMP PUMP
Made in 6 sizes
Copper and Bronze
Throughout
Sales Active
PENBERTHY Products are Sales Active . . . they have all the qualities that appeal to customers. They also offer you a substantial profit, and stay sold.
Sell a Penberthy Automatic Electric Sump Pump or an Automatic Cellar Drainer wherever seepage water accumulates. Show your customers the many advantages and economies of hot water heating plant modernization with these Penberthy Specialties.
Jobbers everywhere carry Penberthy Products in stock.
PENBERTHY
PRESSURE AND RELIEF
CONTROL
Made in 3 Models
for modernizing
hot water heating
systems
PENBERTHY REDUCING VALVE
Made in 9 Models
PENBERTHY RELIEF VALVE
Made in 14 Models
including Dead End Type
Constructed of
High Grade Steam Bronze

PENBERTHY INJECTOR COMPANY *Manufacturers of* QUALITY PRODUCTS *Since 1886*
DETROIT, MICHIGAN • *Canadian Plant,* Windsor, Ont.



IT IS BETTER TO USE A SEPARATE SET OF DIES FOR EACH SIZE PIPE, BECAUSE—

—each set of dies can be ground with the proper cutting angle and the proper clearance to assure easier operation and smoother, more accurate threads and longer die life.

"TOLEDO" makes both types of tools—those using a single set for threading several sizes and those using a separate set for threading each size pipe, but we recommend after thirty years' experience, when ease of operation, low cost per thread and smooth accurate threads even under severe operating conditions are desired, those tools utilizing a separate set of dies for each size.

The "TOLEDO" No. 1BR, illustrated above, uses a separate set of dies for each size—2″ dies are high speed steel. No bushings are required. The new type pipe holder with the broad-faced chuck jaws, indexed guide posts, and large wing-head thumb screws will enable the operator to accurately center the tool quickly.

When you desire the utmost in pipe tools specify a genuine "TOLEDO" trade-marked tool. The "TOLEDO" catalog is now ready and your copy will be sent on request.

No. 1BR, COMPLETE, 1″ TO 2″ $15.00
(F. O. B. TOLEDO OR YOUR DEALER'S STOCK)

THE TOLEDO PIPE THREADING MACHINE CO.
TOLEDO, OHIO

NEW YORK OFFICE, 72 LAFAYETTE STREET

"TOLEDO"
TRADE-MARK REGISTERED

THE STANDARD LINE OF PIPE TOOLS

OUR INDUSTRY

November, 1937

A Peak Market for Remodeling

IN 1926 (considered as a base year) new construction reached an all-time high. That was eleven years ago. Today, those same buildings, although still in service and relatively new, represent what might be considered a peak market for our industry's products and services through remodeling. The last word in convenience, comfort and economy in plumbing and heating products, available at that time, was a far cry from what can be obtained today.

The foregoing illustrates just one of the many conditions and instances which make today's remodeling market particularly noteworthy. It refers to relatively new buildings. It does not take into consideration older buildings which seriously are in need of repairs as well as remodeling. In this connection, the observations of one of your editors, on a recent trip, are interesting. In one of the towns which was visited, having a population of 10,000, it was noticed that one of the main local hotels was being rehabilitated. An entire new washroom was being installed. This called for new plumbing from waste and vent pipes to the marble partitions and finished fixtures. A complete new heating plant was being installed in addition to structural changes in general. This remodeling program was especially significant because a year ago, even though the hotel required rehabilitation just as badly as when the work actually was begun, there was a decision against starting the program. This decision was made because at that time plans were under way in the town for the erection of a new hotel. The glamour of the new project removed all interest from the old but economically sound building. Examples which parallel this actual instance can be pointed to throughout the entire country. Of still greater interest are the numerous buildings where this remodeling should be repeated with its resultant potential market for plumbing and heating products.

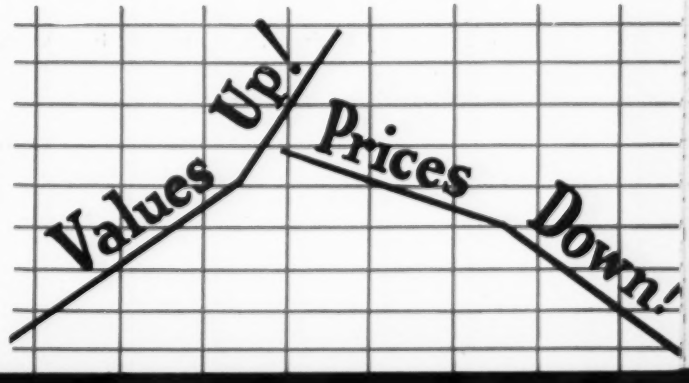
In the residential field, rents have increased and are continuing to increase. Vacancies of any consequence do not exist except in unusual cases. With promise of further increases in revenue from existing properties and with definite assurance from actual cases that still further increases can be realized immediately through the remodeling of properties, every indication points to the importance of the remodeling market as the big outlet for plumbing and heating products. This is especially so when it is remembered that today 70 per cent of our industry's products are used for remodeling, even when new construction is at its height, remodeling is 40 per cent of the market.

At the beginning of this discussion, it was mentioned that the construction which was new in 1926, today represents a big potential market for remodeling. The owners of those older properties face the remarkable situation of being able to buy today new plumbing and heating products at prices startlingly below those paid for the corresponding equipment when the structure was first built.

By every measure, the remodeling market has a strong appeal and a sound economic basis which warrant the best efforts of our industry for its further development.

For example, a swing spout faucet which, in 1926, cost $8.50, today costs $2.50 less and yet has a number of points of superiority. In the line of heating equipment, the same relative saving holds true. The purchaser of a gas fired boiler today pays almost $50 less than the same type and size boiler would have cost eleven years ago in 1926. A point by point comparison down the line of all plumbing and heating products shows that products with added advantages today, are selling at a lower level than did similar products of eleven years ago.

This does not take into account the better convenience, quality, beauty and other values found in today's products.



Values UP! Prices

1926 Products vs.

"Build and remodel now" is point by point comparison

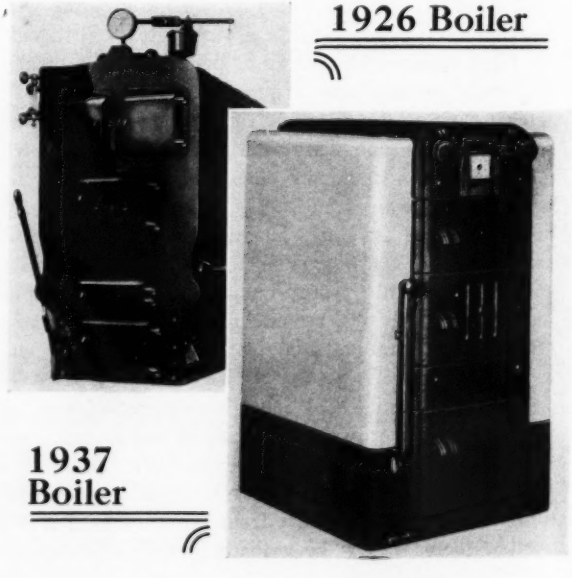
TODAY'S plumbing and heating products are up in everything except price. On every basis of comparison, 1937 plumbing and heating products present greater economy of operation, greater beauty and greater value than did the products of 1926 or 1929. Yet, the price level of today's products definitely is below that of these previous years.

Not only are today's plumbing and heating prices below those of all other major building materials, they are lower than those which exist for many staple commodities in other industries. Those who build or remodel now will get all of the plus advantages which have been built into today's plumbing and heating products at prices which guarantee the 1937 plumbing and heating dollar's going further than it did eleven years ago.

False price propaganda has been directed against building materials in general and the plumbing and heating industry in particular. Such propaganda if left to spread unchecked actually might cause a slowing up of our industry's progress. Definite and determined effort and action is necessary to show the prospective home owner or customer for modernization work that the plumbing and heating industry now offers the biggest bargain in the entire construction field.

Plumbing and heating price levels today are out of line. But they are out of line downward rather than upward in comparison with price levels for other commodities.

The following pages show a point by point comparison between various plumbing and heating products of 1926 and similar products of today. These comparisons, secured from manufacturers, indicate present conditions.



Are Down!

1937 Quality.....

given added emphasis in of old and new products

1926 Boiler

1. Net load steam rating 720 sq. ft.
2. No jacket—no color.
3. No insulation—asbestos covering was an extra.
4. No extended heating surface.
5. "Stoop and open it" method.
6. Operator was forced to reach over the top and slide weights on a bar—often burning the fingers.
7. Adjustments made at rear of boiler. Operator usually soiled clothing and fingers. Another chance to burn the fingers.
8. Domestic water heater was an extra and required more piping to connect than the built-in type.
9. Bars held in position only by gravity. Were often dislodged by clinkers.
10. Besides the handle, five other parts projected from the base front. Hindered cleaning. Excellent shoe "skinners."

1937 Boiler

1. Net load steam rating 750 sq. ft.
2. Steel jacket finished in baked enamel—two colors.
3. Insulation 1½ in. thick between jacket and boiler.
4. Extended heating surface in the form of projecting fingers for better heat absorption.
5. Foot treadle to open ashpit door.
6. Radio dial type apparatus at front for adjusting sensitive damper regulator. Possible to hold temperature within close range.
7. Radio dial type apparatus at front of boiler to adjust smokehood damper. No chance to burn fingers or soil clothing.
8. Built-in storage type domestic hot water heater, standard equipment on steam boilers. Three sizes available.
9. Grate bars with integral locking device to prevent dislodgment.
10. Stream lined shaker handle with no shaker parts projecting from base front.

According to U. S. Department of Labor figures, the present prices of many commodities are higher now than they were in 1926. A basket of meat, for example, that cost $1.00 in 1926 would cost $1.06 today, and a truckload of coke costing $10 eleven years ago would cost approximately $10.50 at present

11. Shaking apparatus consisted of numerous parts to wear and get out of order.
12. Gauges stood high above boiler. Trimmings exposed to breakage.
13. Regulators furnished at extra cost and stood high above boiler with chains, bars and weights.
14. Draft door at side with chains from damper regulator, presenting clumsy appearance.
15. Depended entirely on putty to close space between sections—great heat loss.
16. "Aim-straight-or-spill" type doors. Much spilling of fuel and ashes—more dirt.
17. No baffles to assure dry steam.
18. No written guarantee that the boiler would carry its cataloged rating.
19. 47 in. waterline—frequently required pitting.
20. No provisions made in design to make the boiler flexible. Conversion from hand firing to automatic firing required many new parts and tappings for automatic controls. Base and firebox not proportioned or designed with any thought for automatic firing.

List price **$390.00**

11. Grate shaking apparatus consists of fewer parts. Eliminates lost motion and makes cleaning easier.
12. Recessed gauges and water trimmings. Reduces chances for breakage.
13. Damper regulator enclosed beneath jacket. Furnished as standard equipment.
14. Draft door at rear for neater appearance and better operation.
15. Ground surfaces permitting sections to fit iron to iron.
16. Large doors for convenient firing and ash removal. Reduces shovel-spilling.
17. Dry steam baffles—no water hammer.
18. Bond furnished owner guarantees boiler to carry cataloged rating.
19. Better design permits 44 in. waterline to accommodate air conditioning equipment.
20. Permits economical change to oil or stoker firing and back to hand firing again. The high base, high firebox, extended heating surface and tappings for all controls required for automatic heating makes these changes economical and operation efficient.

List price **$241.00**

1926 Bath Tub

1. Sides and rim curved.
2. Rounded rim—no room for putting things down.
3. Bottom narrower—less bathing area and more danger of slipping on rounded corners.
4. Joint did not offer maximum protection.
5. Secret drain—now barred by many plumbing codes.
6. Hard-to-clean nickel plated fittings with china handles which often broke.

1937 Bath Tub

1. Graceful, modern design, with flat surfaces, beveled rim. Matches the corresponding lavatory and closet.
2. Wide, flat, useful rim.
3. Wider bottom for greater comfort and safety.
4. Improved joint at wall which gives maximum protection against water seepage.
5. Pop-up drain. Water in bath is shut off at outlet. Positive. Sanitary.
6. Chromium plated all-metal fittings. Easy to clean; safe and easy to handle.

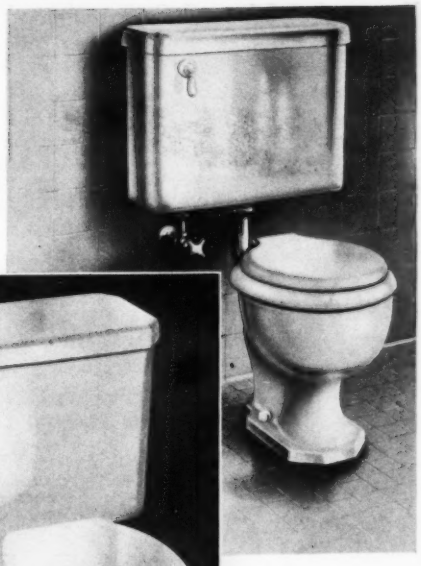
1926 Water Closet

1. Undistinguished lines; no feeling of being matched to companion pieces.
2. Water tank and bowl connected with an exposed metal elbow.
3. Tank hung on wall; consumed more wall space.

1937 Water Closet

1. Flat surfaces and square-cut lines match the other two fixtures of this group. Easy to clean and keep clean.
2. Tank bolted to bowl, eliminating exposed elbow. One piece appearance.

1926 Water Closet



1926 Lavatory

1937 Lavatory

1937 Water Closet

4. High tank top frequently rounded. Little usable shelf space.

5. More difficult to install because tank had to be hung on wall.

6. Flushing noisier.

7. Breakable china handle on trip lever.

8. Smaller, less efficient bowl, 2¾ in. water seal, 1¾ in. passageway, 9½ by 10½ in. water area.

List price, 1937, 26.5 per cent lower on above set than those of 1926.

3. Compact and free-standing. Minimum wall space required.

4. Flat low tank top provides usable shelf space.

5. Easy to install, minimum connections.

6. Quiet, yet positive flushing action.

7. Chromium plated trip lever.

8. Larger, scientifically developed bowl, 3 in. water seal, 2¾ in. passageway, 9 by 10½ in. water area.

1926 Lavatory

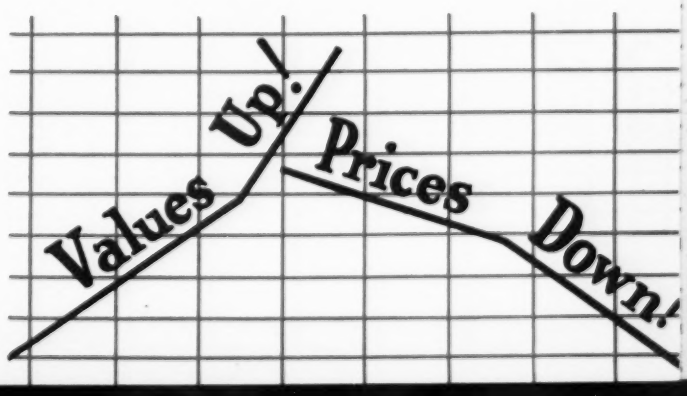
1. Uninteresting lines.

2. Rounded design cuts the basin to 14¾ by 10½ in. with space-wasting rounded corners.

1937 Lavatory

1. Clean-cut, distinguished lines, flat surfaces, square-cut corners, matching the bath and closet.

2. Rectangular design gives this 19 by 17 in. lavatory a 15 by 11 in. basin with square corners.



From the buyer's standpoint a comparison between the prices of plumbing and heating materials and other finished goods is more important than comparisons involving raw materials. The index for finished products, while lower than it was in 1926, stands almost ten points above prices in our industry

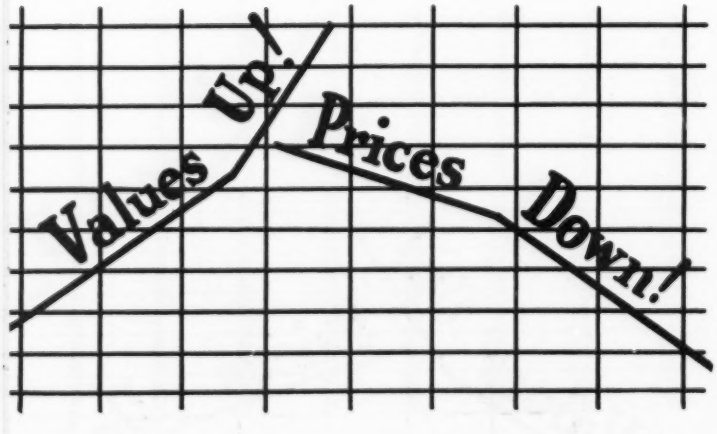
3. No usable space for parking things.
4. Unnecessarily high back.
5. Exposed supplies. Old type trap added several inches.
6. Rigid supplies complicated installation and increased cost.
7. Separate hot-and-cold water faucets. Water must be mixed to proper temperature in basin.
8. Nickel plating on fittings wore off. Handles of china apt to break.

1926 Flush Valve

1. No vacuum breaker.
2. No siphon preventing shut-off.
3. Nickel plated only.
4. No bypass.
5. **Prices ran from 15 per cent higher to approximately the same.**

1926 Oil Burner

1. Short hour S.P. motor, high watt input.
2. High voltage controls.
3. Wide differential thermostatic control.
4. Low pressure atomizer, critical fuel specification.
5. Sheet metal air tube requiring frequent replacement.
6. Cold rolled steel, electrodes easily burned.
7. Porcelain insulators, easily cracked—frequently replaced.
8. Straight case wound ignition transformer.
9. Exposed sheet metal transformer case, sensitive to moisture.



3. Shelf-back for make-up and shaving accessories (72 sq. in. of usable space).
4. Low back gives lavatory a sleek appearance and yet provides enough protection to the wall against splashing.
5. Supplies barely visible. Integral drain housing cuts down length of trap by several inches.
6. Flexible supplies permit easier installation.
7. Compact mixer fitting for tempered water. Permits washing in running water. Out of the way against the back.
8. Durable chromium plated fittings, easy to clean.

1937 Flush Valve

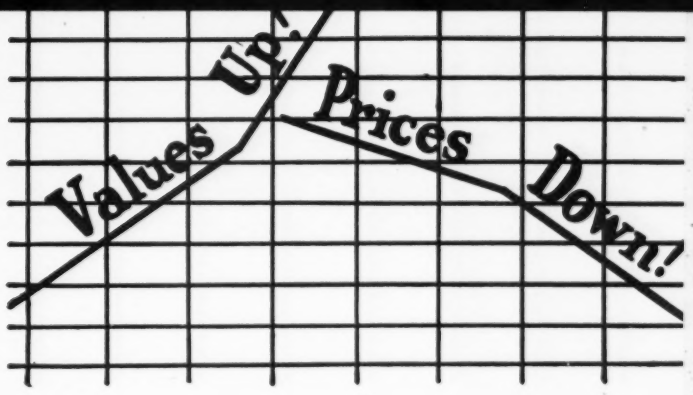
1. Vacuum breaker, eliminating dangers of back siphonage.
2. Special siphon preventing shut-off.
3. Richly chrome plated on heavy nickel plating. Retains lustre over many years of service without excessive polishing.
4. Bypass relocated on side opposite water inlet to provide further protection against clogging.
5. **Prices run from 15 per cent lower to approximately the same.**

1937 Oil Burner

1. Long hour, resistance wound, low watt input.
2. Improved, low voltage controls.
3. Heat accelerated close temperature control.
4. High pressure atomizer, uses all fuels.
5. Special alloy cast heat resisting air tube, everlasting.
6. Nichrome electrodes—everlasting.
7. Moisture proof, high tensile and dielectric strength special ceramic insulators.
8. Unfailing, continuous duty, mid-point ground ignition transformer with shielded secondaries, shock proof porcelains and built in radio carriers.
9. Drawn steel, rust proof and moisture proof transformer case.

The prices of plumbing and heating materials have been lower than building materials in general since early in 1932, and lower than all commodities together since the middle of 1934. Today's plumbing and heating material prices are lower than they were in any year from 1926 straight through to 1932

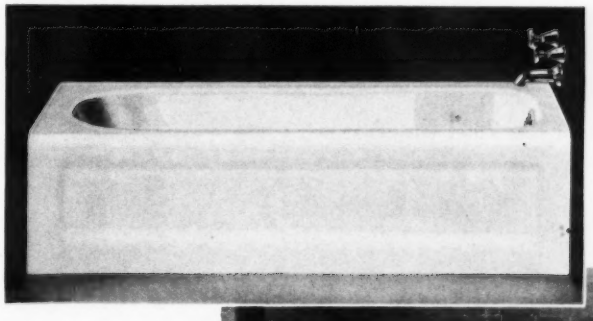
With 70 per cent of today's market for plumbing and heating materials in remodeling and modernizing and only 30 per cent in new building, it is essential that plumbing and heating prices be dissociated from prices of building materials in general



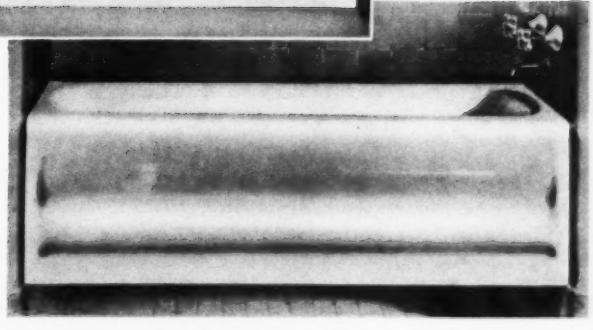
10.	Adjustments necessary to regulate proper flame.
11.	$75.00 auxiliary pump required to draw oil to burner.
12.	No gauge to determine pressure on nozzle.
13.	Boiler or furnace limit control extra at $15.00
14.	No provision made for adaption to special or odd boilers or furnaces.
15.	Operated at 50 to 60 per cent efficiency.
16.	Difficult to service.
17.	Crude design.
18.	Plain castings finished with cracked surfaces.
19.	Heavy riveted fan wheel.
20.	Brass strainers of 15 sq. in. surface.

10.	One adjustment necessary to regulate proper flame.
11.	Built-in self-contained pump which draws oil and forces it to nozzle.
12.	Pressure gauge furnished as standard equipment.
13.	Limit control furnished as standard equipment.
14.	Can be installed in any existing heating plant, special adaptors at no extra charge.
15.	Operates at 92 per cent efficiency.
16.	Easily serviced.
17.	Streamline balanced design.
18.	Polished castings, primed and finished in baked enamel.
19.	Light fabricated balanced aluminum fan wheel.
20.	Dual non-corrosive strainers of 30 sq. in. surface.

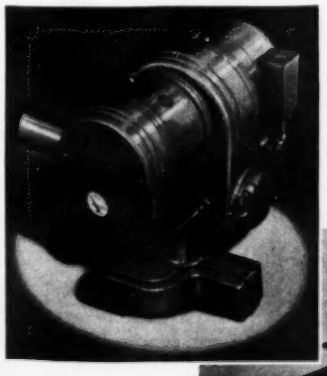
1937 Tub

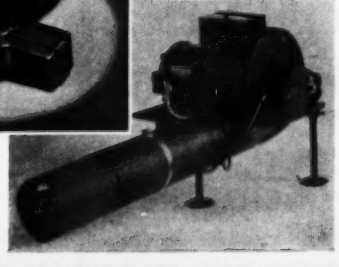


1926 Tub



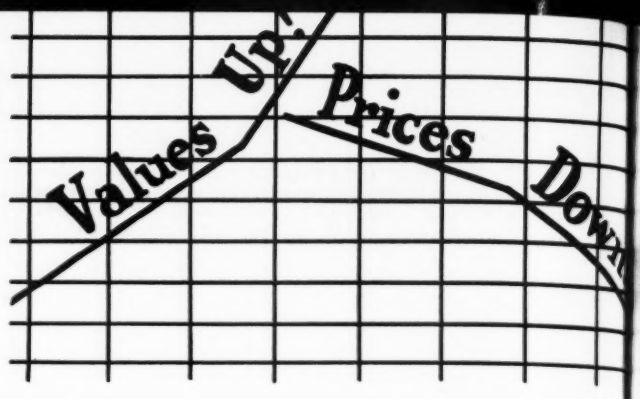
1937 Oil Burner





1926 Oil Burner

The price index for all commodities taken together stands today at 87.9 with 100 as the 1926 base. This is 8½ points higher than the index for plumbing and heating materials, 8½ potent reasons for buying plumbing and heating materials now



21. Pump with packing gland and hand oiler.
22. No pressure regulator and solenoid cut off valve.
23. Conventional fan type air whirler for controling air mixture.
24. Plain air tube at nozzle, no combustion head.
25. No provision for adjusting firing order.
26. Single pipe for oil feed lines.
27. ¼ in. pipe for pressure oil line.
28. Noisy operation, not fire tested.
29. **Average trade price**.....$225.00

1926 Water Feeder

1. City water fed through float chamber.
2. Composition-discs used in valves.
3. Comparatively small strainer area.
4. One-inch equalizing pipe hookup.
5. No provision for low water cut-off switch.
6. Weight 50 lb.
7. **List price** $32.50

1926 Air Valve

1. No variable venting feature.
2. Vents air up to 5 lb. pressure.
3. Orifice size extra large. Venting speeds of independent valves varied.
4. Valve pin and seat machined by hand.
5. No vacuum feature.
6. Closes automatically against steam. However, closing temperature not predetermined.

21. Pump with mechanical seal and self oiling.
22. Nitroloy pressure regulator and cut off valve built into pump and strainer unit.
23. Highly perfected and patented system to control air mixture.
24. Perfected design special alloy heat resisting combustion head.
25. High efficiency regulation for minutely adjusting firing order.
26. Double wall tubing for oil feed line.
27. Seamless tubing with ⅛ in. bore for pressure oil line.
28. Silent operation, fire tested and guaranteed.
29. **Average trade price**.....$105.00

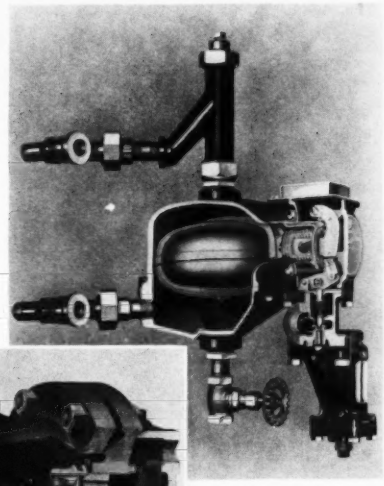
1937 Water Feeder

1. Safety feeder principle, feeder located in boiler to close at 1 in. of water in gauge-glass. Quick hookup installation into water glass tappings. Water is fed independently of float chamber.
2. Isolated or cool feed valve construction, prevents lime formation. Packless construction, all working mechanism outside steam and water zone.
3. Large, easily cleaned strainer.
5. Low water cut-off may be added easily.
6. Weight 30 lb.
7. Price includes quick hookup fittings.
List price $25.20

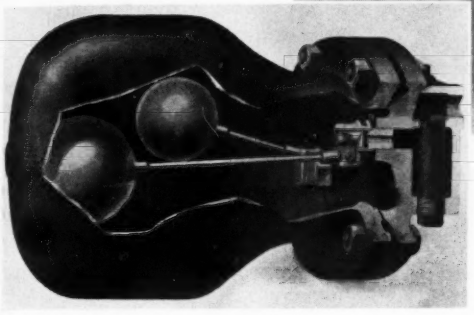
1937 Air Valve

1. Variable venting feature permits definite control of radiator venting, makes possible balancing or equalizing the distribution of steam.
2. Vents air up to 15 lb. pressure.
3. Orifice size scientifically determined. A full radiator of steam is assured in the least possible time. All valves calibrated to vent at same speed.

1937 Boiler Water Feeder

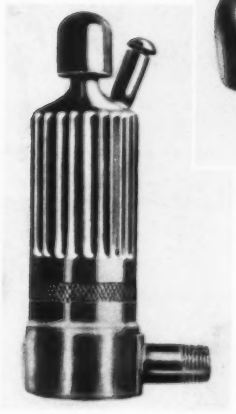


1937 Air and Vacuum Valve



1926 Feeder

1926 Valve



7. Hand operated push button to relieve valve of water-logging condition.

8. Connection nipple soldered to base.

9. Finished valve received two tests—steam and air venting.

10. Finished in dull-nickel.

11. Tissue wrapped packed 12 valves to manilla carton.

1937 Convector

The convector of 1937 is a far superior heat-transferring agent. Cracks, crevices, and joints have been eliminated in favor of greater cleanliness. Rounded corners and smart lines make it as attractive as any piece of furniture. With mechanical improvements plus a greater number of applications, it is keeping in step with progress at approximately *one-third the cost* of the older model.

4. Valve pin and seat automatically machined—uniform exactness.

5. Bellows vacuum feature locks out air after decline of boiler pressure. Prevents heat-giving vapor from being pushed back to the boiler. Enables steam to be generated at low boiler temperatures.

6. Closes automatically against steam at exact predetermined temperature.

7. Drains automatically—cannot become water-logged.

8. Connection nipple an integral part of base—particularly rigid construction.

9. Finished valve receives 26 independent tests with precision-scientific equipment.

10. Finished in brilliant chromium.

11. Individually packed in colorful display cartons.

1926 Heat Cabinet

The heat cabinet of 1926 was based on a new principle of heat circulation; it was economical and, in its day, efficient, but it cannot be compared with the Convector of 1937 whose refinements, advancements, and more and better features are available at approximately *one-third the cost* of the 1926 model.

The average of plumbing and heating material prices for the past eleven years is 82.1 on the basis of a 1926 average of 100. Although this average includes the disastrously low prices of the depression years, present day prices are lower

1926 Water System

1. Capacity of this model 240 gal. per hour.
2. Eccentric and shaft was one piece. Pulley side of shaft ran in a renewable bearing and other side ran in a bearing in crank case cover. Bearings wore and caused noise.
3. Eccentric and shaft were cast iron.
4. Piston rod was brass. Easily scored.
5. Flat belt drive with idler. Noisy in operation.
6. Separate vacuum and air chamber.
7. No thermal overload protection for motor.
8. No automatic air control.
9. No rubber cushions under pump.
10. List price.....$123.00

1937 Water System

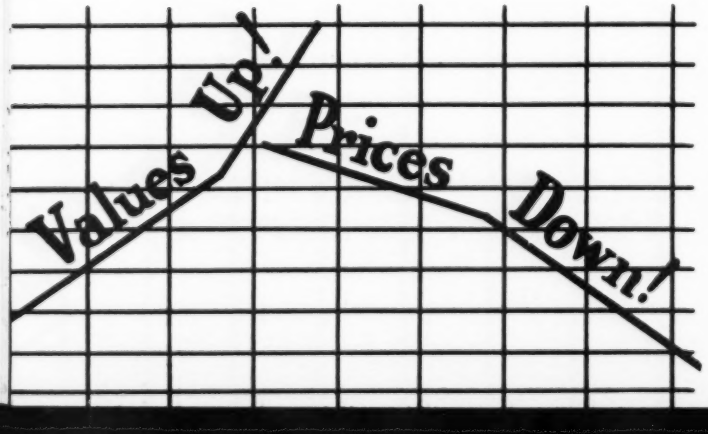
1. Capacity of this model 275 gal. per hour.
2. Roller bearings on the crankshaft, together with ball bearings on crank end of connecting rod, produce a smooth running practically noiseless long-lived pump.
3. Crankshaft is drop forged steel.
4. Piston rod is stainless steel which will not rust, pit nor corrode. Not easily scored.
5. "V" belt drive. Quiet in operation. No slippage.
6. Combination vacuum and air chamber. Efficient in operation and improves appearance.
7. Thermal overload in switch protects motor from overload.
8. Automatic air control on tank.
9. Rubber cushions between pump and sub-base eliminate sound vibrations to a great extent.
10. List price $76.00

1926 Gas Fired Boiler

1. A. G. A. Steam Rating.....525 sq. ft. Supplies sq. ft. Direct C. I. Radiation...337 sq. ft.
2. All controls are exposed. Jacket is transite board with aluminum trim.
3. No gas tight connections from boiler flues to canopy. Products of combustion could leak out between jacket and canopy.
4. Jacket finish not permanent and stains from products of combustion.
5. Clean out plates on front only—difficult to keep them tight.
6. Same burner used for both manufactured and natural gas, not as quiet.
7. Gas control valve of snap action type only, electric motor for room temperature control mounted on wall with chain and pulley connection to gas valve.
8. Steam limit control connected to lever on valve by rod from damper regulator on boiler.
9. Low water cutoff manually reset.
10. Vapor tension thermostatic pilot.

1937 Gas Fired Boiler

1. A. G. A. Steam Rating.....610 sq. ft. Supplies sq. ft. Direct C. I. Radiation...391 sq. ft.
2. All controls are enclosed within lustrous baked enamel jacket finished in gun metal with chromium trimmed gauge and name plate.
3. Gas tight connection from combustion chamber to flue. Canopy fits in groove in sections filled with boiler putty.
4. Durable finish—boiler will keep its good looks indefinitely.
5. Cleanout plates with permanent tight connections for cleaning flue surfaces front and rear.
6. Quiet burners, different type supplied for both manufactured and natural gas.
7. Improved gas control valve, electric thermometer for room temperature control is incorporated in the throttling type valve.
8. Steam throttling and limit control mounted on the compact gas valve.
9. Low water cutoff automatically reset.
10. Improved vapor tension thermostatic pilot.



The index for motor vehicles is 93.7. An automobile which cost $1,000 in 1926 would cost only $937 today, but plumbing and heating materials which cost $1,000 in 1926 would cost only $787 now. Housefurnishing goods, also, are higher in price today than plumbing and heating fixtures and fittings

11. Straight steam gauge in round black case.

12. For the same amount of rating the consumer paid 30 per cent more in 1926 than he does in 1937.

Price to consumer.....$444.00

Old Circulator

1. Capacity, varied with each unit. No guarantee.

2. Power unit, separate motor, which had to be carefully handled to prevent trouble.

3. Lubrication, grease, which was undependable, requiring frequent attention.

4. No motor protection, frequent failures.

5. Bearing construction, small bearing and shaft with small thrust surfaces, resulting in rapid wear of shafts and bearings.

6. Packing, standard metallic packing, requiring frequent adjustment. Lack of care caused worn-out equipment.

7. Design, clumsy, difficult to handle and service.

8. Coupling, spiral, causing noise.

9. Appearance, crude looking, no attempt made to present a good appearance.

10. Performance, good, but lacking the essential features needed for today's market.

List price $86.50

1926 Controls

1. The room thermostat was equipped with an eight-day, hand-wound detachable clock which provided for automatically lowering and raising the room temperature at any predetermined time. The thermostat was finished in silver, and occupied a wall space of 2¼ by 9⅛ in.

List price $50.00

2. The primary control or operating mechanism required two instruments, one of which was quite bulky in size, actually occupying a wall space of 8 by 12 in.

List price $40.00

The other necessary instrument was a stack mounted unit.

List price $20.00

Total $60.00

(Continued on Page 172)

Today's average plumbing and heating prices are much lower than they were in 1926. A selection of fixtures which would have cost $100 in 1926 would now cost only $78.70 and at the same time today's products have the added value of eleven years of improvement in materials, convenience and beauty

11. Compound steam gauge in square chromium case.

12. For the same amount of rating the consumer pays 24 per cent less in 1937 than he did in 1926.

Price to consumer.....$395.00

1937 Circulator

1. Capacity, guaranteed to perform to a definite standard.

2. Power unit, self-contained, easily changed. Greatly improved in operation.

3. Lubrication, oil, which assures quiet, trouble-free service.

4. Protection, each motor equipped with a hand reset, eliminating motor burn-outs.

5. Bearing construction, large, ample bearing with sufficient thrust surface to prevent any shaft movement.

6. Packing, seal construction, which assures a permanent seal off of the water, eliminating bearing wear from water contact.

7. Design, simplified so that equipment is easily handled in the field.

8. Coupling between power unit and pump, results in quiet, trouble-free operation.

9. Eye appeal, booster design blended into a smooth external appearance.

10. Performance, definitely up to the needs of the present day.

List price $56.00

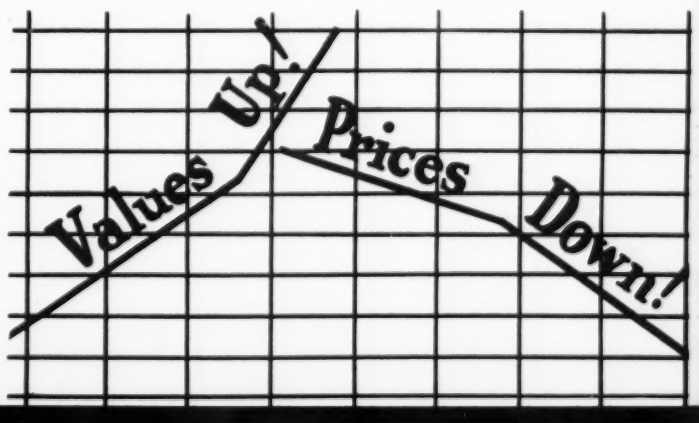
1937 Controls

1. Today, the comparable room thermostat is completely automatic and is equipped with a self starting electric clock movement. Room temperatures may be automatically lowered and raised at any predetermined time, and an attachment is available for week-end shutdown. This operates on the principle of heat acceleration and will maintain an almost constant temperature regardless of outside weather conditions. It is modern in appearance—has a silver finish and requires a wall space of 3 by 8 in.

List price $41.00

2. Today the operating mechanism or primary control consists of one compact unit which is stack

(Continued on Page 173)



The above illustration, used as a showroom display, serves to remind the observer that plumbing and heating prices are lowest and is an effective aid in the campaign now being carried on

Advertising—*Prices Are Lowest*

Cooperative campaign launched to refute destructive propaganda and produce sales

THERE is a double barrelled idea presented by the cooperative advertising campaign which now is being sponsored by the North Shore Plumbing Contractors Association in the suburbs of Chicago. The campaign is interesting, first, because of the method used by the association to tell the story of the industry to the buying public and, second, for the message which has been employed to key the entire campaign to sales results.

Both points have been accomplished in a similar fashion and both points definitely are related. For one thing, the entire campaign has been built up around the idea of defeating current, false and potentially harmful propaganda which states that plumbing and heating prices of today are high. Following such a course has proved to be, at one and the same time, both a message which the association uses to reach the buying public and a method employed to spread that message.

Fred Flader, chairman of the committee in charge of the association's advertising, summed up the reason for the association going into a cooperative advertising campaign when he declared that a plumbing and heating contractor-dealer's knowledge that prices of his products are low serves no purpose as long as that knowledge remains a trade secret. Mr. Flader also stated that while the plumbing and heating contractor-dealer is in possession of the true facts on prices, nothing can be done until those facts have been broadcast to the general public. In the present matter of price propaganda, the true facts must be emphasized extensively and intensively to the consuming public if adverse propaganda is to be defeated. The association realizes that it takes more energy to break down a belief in the minds of the general public than it does to build up one. This, then, is an explanation for the present advertising activity of the North Shore Plumbing Contractors Association.

The association found the necessary ammunition to refute false beliefs on plumbing and heating prices readily available. Statistics prepared by the Department of

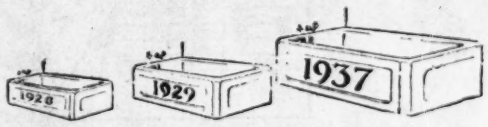
(Turn to Page 70)

Reproductions of the newspaper ads on the opposite page show how the North Shore Plumbing Contractors Association are making cooperative advertising prove that plumbing prices are lowest

BUILD NOW!
MODERNIZE NOW!

Your home building dollar today buys

- **15 per cent more plumbing than in 1929**
- **21 per cent more than in 1926**



Plumbing prices today are 10 per cent below the average for the last 12 years.

Take advantage of this favorable price situation. Build now! Modernize that out-moded bathroom now! Have an additional bathroom or convenient powder room installed or the old back-breaking sink replaced by a glamorous new cabinet model.

Call a member of the North Shore Plumbing Contractors Association and get an estimate today on your modernizing needs. Or, if you are planning to build, a member of the North Shore Association will be able to advise you on the most economical design for your plumbing system.

PLUMBING PRICES
BELOW THE AVERAGE
for the LAST TWELVE YEARS!

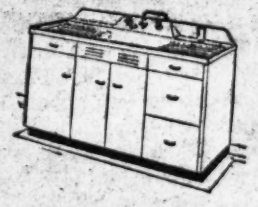
There never was a better time than the present to bring that old bathroom up to date — to replace drab and worn fixtures with glamorous new and colorful equipment, streamlined for beauty and efficiency.

Hundreds of North Shore bathrooms are badly in need of modernization. This is the time to do it. Your dollar today buys 15 per cent more plumbing than in 1929 and 21 per cent more than in 1926.

Don't delay. Call a member of the North Shore Plumbing Contractors Association today and get an estimate on the cost of bringing the old bathroom up to the 1937 standard of colorful beauty.

Correct installation is most important.

By calling a member of the North Shore Association you will be assured of good workmanship.



THE SINK
KEYNOTE of KITCHEN EFFICIENCY

Why endure needless kitchen drudgery when a beautiful new work-saving and leisure-creating sink is so inexpensive?

Why try to get along with drab and outmoded equipment?

Get the convenience of a cabinet sink — roomy storage drawers — everything right at hand — lustrous porcelain enameled easy-to-clean surface — streamlined modernism in the kitchen.

Call a member of the North Shore Plumbing Contractors Association and get expert advice on a handsome new sink for your kitchen. No obligation, of course.

●

Members North Shore Plumbing Contractors Association

Evanston
A. J. BUTOW, Gre. 6050
A. J. CHESTER, Uni. 0875
E. W. COEL, Uni. 2058
JOHN DOOSE, Uni. 0978
FRED FLADER, Uni. 5193
W. H. GREGG, Gre. 1154
JOHN KABEL, Gre. 4619
GEO. A. KEARNEY, Uni. 0313
JOHN M. KREJCI, Uni. 5561
H. G. MOORE, Uni. 0563
E. R. NORMAN, Uni. 0577
S. WANZENBERG, Uni. 2511

Park Ridge
C. J. GEISER, Park Ridge 666
A. HASSE, Park Ridge 869
F. SAVILLE, Park Ridge 790

Niles Center
GEORGE MEYER, Niles Center 46

Wilmette
MARTIN JACOBSON, Wil. 3
W. C. LUCKE, Wil. 2020
N. J. MERGENTHALER, Wil. 2004
J. STEINER, Wil. 623

Kenilworth
A. S. McKENNA CO., Ken. 92

Winnetka
V. J. KILLIAN, Win. 908
ANDREW PARK, Win. 131
DAVID PARK CO., Win. 1417
SAM STEFFINS, Win. 874

Glencoe
A. W. KYLE, Glenco 1098
C. R. McARTHUR, Glencoe 119

Northbrook
A. OSTIAN, Northbrook 276R

Morton Grove
MAX FINKE, Morton Grove 1823

Glenview
GLENVIEW PUBLISHING CO.
Glenview 124

PLUMBING
THE VITAL PART — of — YOUR HOME

NOTHING CONTRIBUTES SO MUCH TO THE

CONVENIENCE and HEALTHFULNESS OF LIVING AS MODERN

PLUMBING

For PROMPT and EFFICIENT SERVICE
Call Your LOCAL MASTER PLUMBER

Members North Shore Plumbing Contractors Association

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W. H. Gregg, Gre. 1154
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JOHN M. KREJCI, Uni. 5561
H. G. MOORE, Uni. 0563
E. R. NORMAN, Uni. 0577
S. Wanzenberg, Uni. 2541

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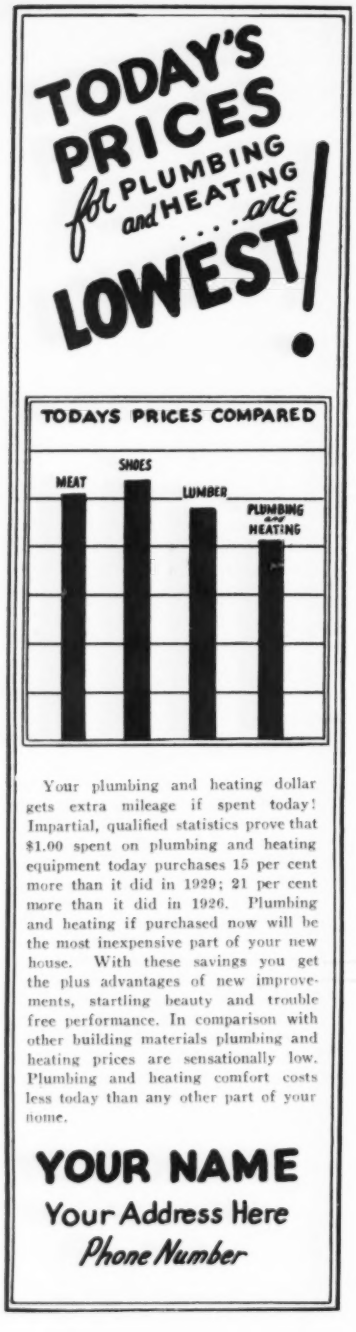
Glenview
GLENVIEW PUBLISHING CO.
Glenview 124


TODAY'S PRICES for PLUMBING and HEATING ....are LOWEST!
TODAYS PRICES COMPARED
MEAT
SHOES
LUMBER
PLUMBING and HEATING
Your plumbing and heating dollar gets extra mileage if spent today! Impartial, qualified statistics prove that $1.00 spent on plumbing and heating equipment today purchases 15 per cent more than it did in 1929; 21 per cent more than it did in 1926. Plumbing and heating if purchased now will be the most inexpensive part of your new house. With these savings you get the plus advantages of new improvements, startling beauty and trouble free performance. In comparison with other building materials plumbing and heating prices are sensationally low. Plumbing and heating comfort costs less today than any other part of your home.
YOUR NAME
Your Address Here
Phone Number

"The biggest bargain in the entire building and modernization field, today, are the products of the plumbing and heating industry. A dollar spent for plumbing and heating at today's price levels will buy just 15 per cent more than it did in 1929 and 21 per cent than it did in 1926. Yet the plumbing and heating products of today represent better values by every standard of comparison than did those of either eight or eleven years ago," according to.....

Mr. ..... went on to point out that the United States Department of Labor has released figures which prove conclusively that the price range of today's plumbing and heating products is 10 per cent less than the average which has existed for the past twelve years.

Mr. ..... compared today's plumbing products with those of past years. Such a comparison reveals that the plumbing of today is more troublefree, has greater beauty and increased efficiency than ever before. A comparison of 1926 and 1937 heating equipment is equally in favor of today's values. Today's heating plants are more smartly styled and offer unprecedented economy.

News Item

The above prepared news item can be run in your local paper to offset and nullify adverse price propaganda

At the left is shown a newspaper advertisement which indicates graphically the current position of plumbing and heating prices when compared to other commodities

Ad

Labor of the Federal Government have shown beyond any doubt that rather than being high, plumbing and heating prices which exist today are lower than they were in either 1926 or 1929. The Government report showed also that today's plumbing and heating prices are low in comparison to other building materials as well as to commodities outside the building industry.

The association recognized in these facts a custom tailored story which would adequately suit the purposes of such a cooperative advertising program as they contemplated. Up to the present time the North Shore Association has sponsored five advertisements in local newspapers read by residents of ten communities. Of the five advertisements which already have appeared in the series, two have been devoted to the subject of prevailing prices for plumbing and heating products. In the preparation of the advertisements, the association worked closely with the Plumbing and Heating Industries Bureau. Under the method which was finally selected by the association, the advertisements first appear in the Evanston *News-Index*, a daily newspaper which covers the territory of all the 30 participating members. The same advertisements then later appear in a weekly shopping paper which is delivered free of charge to all residents of the numerous North Shore suburbs.

One advertisement has appeared each week in approximately the same page position in each of the two papers. These advertisements first appear during the early part of the week in the daily paper and then reappear at the end of the week in the weekly shopping paper. All of the advertisements are two columns in width and about ten inches high. This affords adequate room for both a cut and copy. Several of the advertisements have carried the names and telephone numbers of the participating members. When this is the case, the names have

(Continued on Page 163)

Another powerful reminder of the value and buying power of the present plumbing and heating dollar is to be found in the use of the above sticker. Every letter and mailing piece which has one of these stickers attached to it will emphasize the idea of buying now

Sticker

Display

The price of the window display complete (including shipping charges) is $4.95. Orders for this should be addressed to the editor, DOMESTIC ENGINEERING, 1900 Prairie Ave., Chicago. Orders will be forwarded to the manufacturer of these displays and prompt shipment will be made.

Stickers

The sticker shown above is available at the rate of $2.75 per thousand. These are printed in two colors on white stock and are gummed for easy attachment to letters, invoices and other mail matter.

Electrotype

An electrotype of the head and chart for the newspaper advertisement shown costs only 50 cents. If preferred, mats are available by addressing the editor.

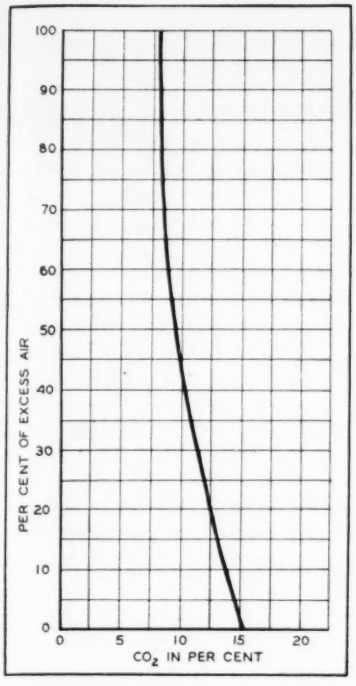


Fig. 1—This chart shows the CO_2 developed in relation to excess air

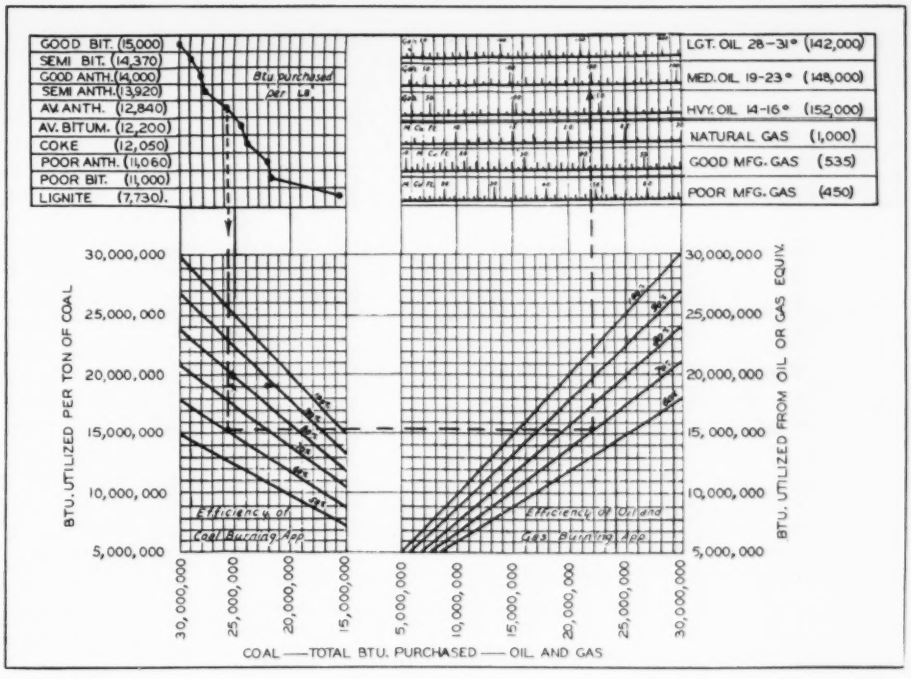

GOOD BIT. (15,000)
SEMI BIT. (14,370)
GOOD ANTH. (14,000)
SEMI ANTH. (13,920)
AV. ANTH. (12,840)
AV. BITUM. (12,200)
COKE (12,050)
POOR ANTH. (11,060)
POOR BIT. (11,000)
LIGNITE (7,730).
Btu purchased per Lb.
LGT. OIL 28–31° (142,000)
MED. OIL 19–23° (148,000)
HVY. OIL 14–16° (152,000)
NATURAL GAS (1,000)
GOOD MFG. GAS (535)
POOR MFG. GAS (450)
BTU. UTILIZED PER TON OF COAL
BTU. UTILIZED FROM OIL OR GAS EQUIV.
Efficiency of Coal Burning App.
Efficiency of Oil and Gas Burning App.
COAL — TOTAL BTU. PURCHASED — OIL AND GAS

Fig. 2—As indicated by the leader lines, this chart presents a quick method for comparing various fuels to obtain the equivalent amount of fuel in comparison with one ton of coal

"Whys"—*of Automatic Heating*

Oil burning, stoker firing and gas firing fundamentals are presented here in discussion of automatic heating equipment

HEATING is, perhaps, the most important essential of the modern home. In recent years great advance has been made in the art of heating including new types of radiators and convectors as well as improvements in steam and hot water systems combined with automatic controls which make it possible to hold equitable and satisfactory temperatures as long as a fire is maintained. Formerly the case of the fire attendance constituted a real bugbear in the home; even with a poor and unsatisfactory heating system some heat could be obtained if the home fires were kept burning but, with no fire, there was no heat; hence the necessity of maintaining the fire at any cost and regardless of inconvenience.

Progress, however, has not omitted the problem of fire maintenance from consideration and today "firing by hand" may be regarded almost as far out of date as the "horse-and-buggy-days."

While "automatic heat" in its broadest sense covers everything automatic in connection with the entire heating system, the usual application of automatic action is largely confined to the course of heat production; i. e., the source where the fire is produced. For this reason the discussions herein will be confined to the automatic production of heat in the boiler by various means; in fact, any means which eliminates hand firing.

The three most common and successful methods which have given general satisfaction are

1. Automatic Stokers
2. Oil Burners
3. Gas Firing

the type of device employed being determined by the fuel to be used and the fuel most frequently being dictated by the cost per 1,000,000 Btu. delivered into the heating system in the various locations.

The relative cost of different fuels is not one based on weight or volume; on the contrary it is one based on the heat, or Btu., purchased per dollar invested and on how much of this is delivered into the heating system in the shape of utilizable heat.

In the case of coal the cost per 1,000,000 Btu. deliv-

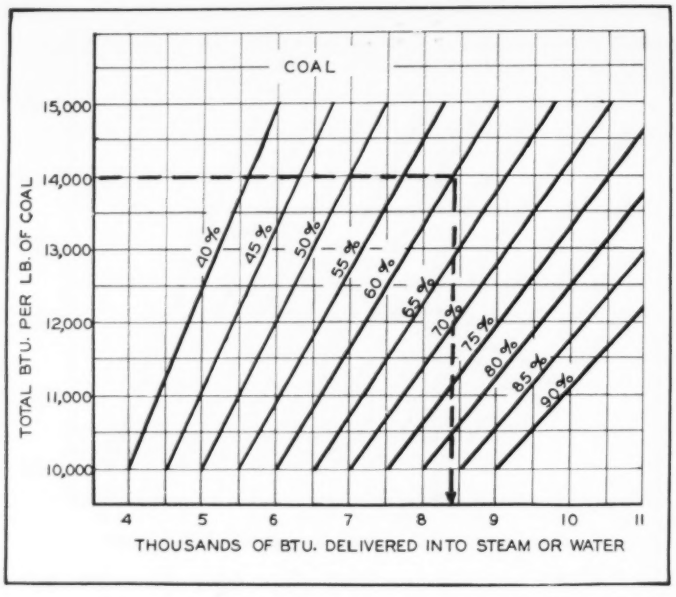


Fig. 3—The number of Btu. delivered into the steam or hot water, using coal, may be determined from this chart

ered depends on the following enumerated factors:

1. Cost of the coal delivered in bin
2. Btu. content of coal
3. Efficiency of the equipment.

On a fuel basis the cost per 1,000,000 Btu. delivered into the heating system may be computed for coal or coke from the formula

$$\frac{1{,}000{,}000 \text{ Btu.} \times \text{Cost per ton}}{\text{Btu. per lb. of Fuel} \times E \times 2{,}000 \text{ lb.}}$$

when E is the overall efficiency of the boiler and stoker. If the fuel is purchased by "long ton" weight as sometimes happens the 2,000 lb. in the formula should be changed to 2,240 lb.

Thus, with an average overall efficiency of 60 per cent, coal having 13,000 Btu. per lb., and costing $8.00 per ton delivered, the cost per million Btu. delivered into the heating system would be

$$\frac{1{,}000{,}000 \text{ Btu.} \times \$8.00}{13{,}000 \text{ Btu.} \times 0.60 \times 2{,}000 \text{ lb.}} \text{ equals } \$0.51$$

A similar formula may be used for oil consisting of

$$\frac{1{,}000{,}000 \text{ Btu.} \times \text{Cost per gal.}}{\text{Btu. per gal.} \times E}$$

when "E" is the overall efficiency of the boiler and burner.

With gas the formula becomes

$$\frac{1{,}000{,}000 \text{ Btu.} \times \text{Cost of Gas per M cu. ft.}}{\text{Btu. per cu. ft. of Gas} \times E \times 1{,}000 \text{ cu. ft.}}$$

The number of Btu. delivered into the steam or hot water in a heating boiler at various percentages of overall efficiency may be obtained from Fig. 3 where the Btu. per lb. of coal is given in the left hand column, the overall efficiencies are shown by the diagonal lines and the Btu. per lb. of coal burned which are delivered into the boiler water may be read from the scale at the bottom of the chart. Thus, 14,000 Btu. coal burned in a boiler having, say, 60 per cent overall efficiency will deliver 8,400 Btu. into the boiler per lb. of coal burned as shown by the leader lines indicated.

A similar chart for oil is given in Fig. 6 where oil with 145,000 Btu. per gallon used in a boiler with 80 per cent overall efficiency will deliver 116,000 Btu. into the boiler per gallon of oil burned as indicated by following the leader line shown on the chart. Fig. 5 may be used for gas and the leader line given shows that natural gas, at 1,000 Btu. per cu. ft. if burned in a boiler with an overall efficiency of, say, 60 per cent will deliver 600 Btu. into the boiler for every cu. ft. of this quality of gas which is burned under this condition.

The determining of the Btu. content of a solid fuel always can be done by analysis but for domestic work the supplier commonly is called on to furnish a fuel of given Btu. value and an analysis is made only if it is suspected that the supplier is not living up to his contract. With gas the supplying company will usually furnish an analysis of the gas supplied during the previous year and the average Btu. value per cu. ft. of same.

In the absence of more authentic information the following values usually are assigned to the various fuels:

Solid Fuels	Btu. per lb.
Good Bituminous	15,000
Semi Bituminous	14,370
Good Anthracite	14,000
Semi Anthracite	13,920
Medium Anthracite	12,840
Medium Bituminous	12,200
Coke	12,050
Poor Anthracite	11,064
Poor Bituminous	11,000
Lignite	7,730

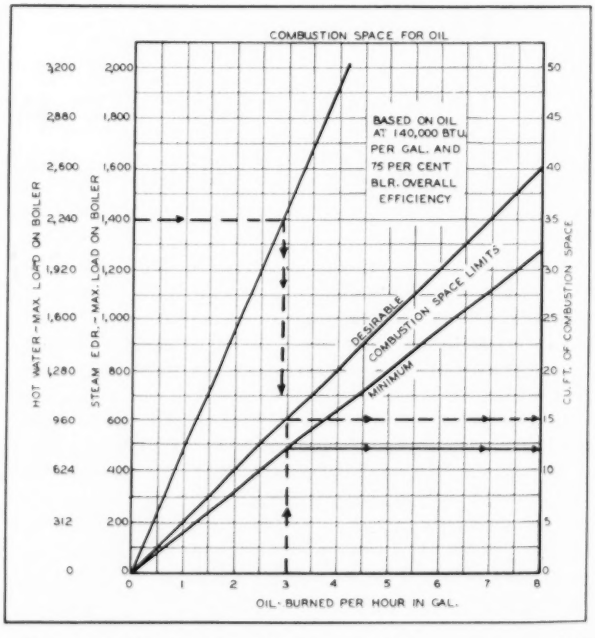

COMBUSTION SPACE FOR OIL
BASED ON OIL AT 140,000 BTU. PER GAL. AND 75 PER CENT BLR. OVERALL EFFICIENCY
DESIRABLE COMBUSTION SPACE LIMITS
MINIMUM
HOT WATER - MAX. LOAD ON BOILER
STEAM E.D.R. - MAX. LOAD ON BOILER
CU. FT. OF COMBUSTION SPACE
OIL - BURNED PER HOUR IN GAL.

Fig. 4—Indicated here is the combustion space required for oil burning, giving both desirable and minimum combustion space requirements taken from steam on hot water load

In Fig. 2 is given a chart which may be used for a quick method of comparing solid, liquid and gas fuels

Liquid Fuels	Btu. per Gal.	Btu. per lb.
No. 2 Oil	139,000	19,625
No. 3 Oil	142,000	19,450
No. 4 Oil	145,000	19,250
No. 5 Oil	148,000	19,100
No. 6. Oil	152,000	18,900

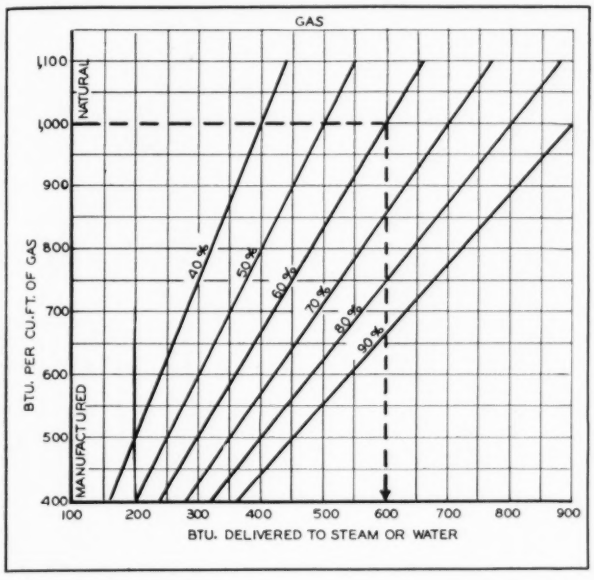


Fig. 5—"1,000 Btu., if burned in a boiler with an overall efficiency of 60 per cent will deliver 600 Btu. for every cu. ft. of this quality of gas . . . which is burned"

Gaseous Fuels	Btu. per cu. ft.
Natural Gas	1,000
Good Manufactured	535
Poor Manufactured	450

to obtain the equivalent amount of fuel in comparison with one ton of coal as far as the amount of heat delivered into the boiler is concerned.

For the purposes here, combustion may be defined as the combining of the oxygen in the air with the carbon in the fuel which process is accompanied by the generation of heat. Normally complete combustion will be accomplished when two parts of oxygen unite with one part of carbon producing CO_2 or carbon dioxide. If insufficient oxygen is supplied some of the carbon will find only one part of oxygen with which to combine and CO or carbon monoxide will result.

If too much air is supplied no particularly bad combustion results but the excess air must be heated up to the fire temperature, then cooled down to the exit gas at the smoke outlet of the boiler. Since all exit gases carry off a certain amount of heat from the fire, it follows that the greater the amount of this exit gas the greater this loss will become.

For the purpose of good efficiency it is essential that sufficient air be supplied to furnish all the oxygen necessary for *complete* combustion (uniting of all carbon with oxygen to produce CO_2) but that no air beyond this amount be drawn through the fire.

The heat in the flue gas does some useful and necessary work in producing a draft sufficient to operate the boiler. For this reason a very efficient coal or oil fired boiler will have low exit gas temperatures and may suffer from lack of draft where a less efficient boiler with a higher gas temperature would not have this difficulty.

It requires, theoretically, 11½ lb. of air—there are 13⅓ cu. ft. of air to 1 lb. at about 70 deg. Fahr.—to secure the perfect and complete combustion of 1 lb. of carbon. Owing to the fact that coal never consists of 100 per cent pure carbon the amount of air per lb. of coal will be slightly less. The CO_2 developed under conditions of perfect combustion would be around 20 per cent but excess air usually reduces this to around 13 or 14 per cent. This indicates that 40 to 45 per cent of excess air must be used over the minimum possible to secure theoretically perfect results.

In many stoker installations the ratio of 18 lb. of air per pound of coal burned is considered as a fair operating condition; the air should be reduced if possible to do so without developing CO and smoke, both of which are the results of incomplete combustion. The space in which the combustion takes place is of paramount importance as complete combustion will not be accomplished if the combustion chamber is too small regardless of the amount of excess air which may be used. The result is smoke and loss of efficiency due to incomplete combustion on account of inadequate furnace volume.

The desirable combustion space or furnace volume for stokers approximates in cu. ft. about ⅓ of the number of lb. of coal burned per hour. Thus a stoker with a maximum capacity of 60 lb. of coal per hour would require

$$60 \times \tfrac{1}{3} \text{ or } 20 \text{ cu. ft.}$$

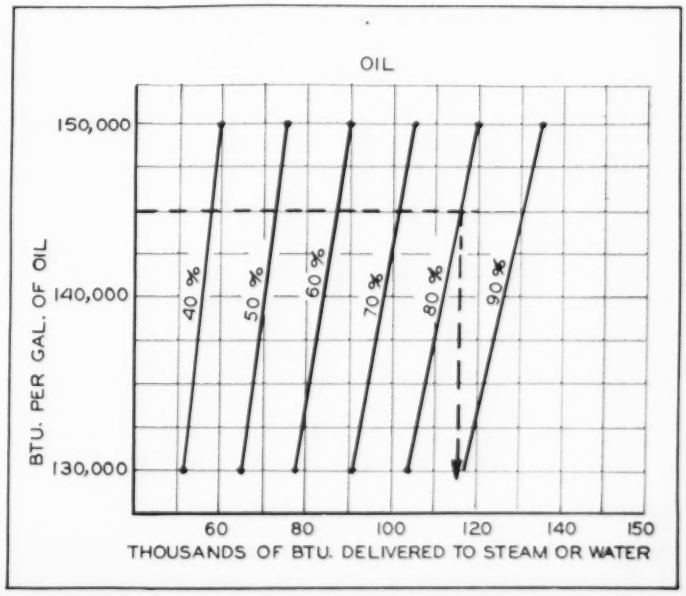
for the combustion space while a stoker feeding 150 lb. of coal per hour would require

$$150 \times \tfrac{1}{3} \text{ or } 50 \text{ cu. ft.}$$

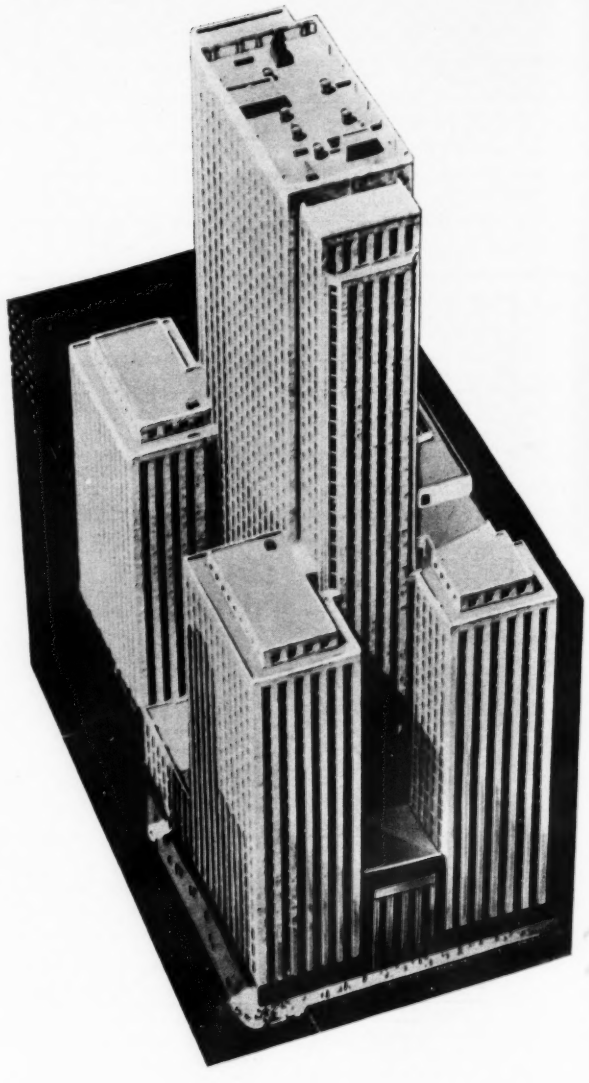
When the combustion space is less than 75 per cent of this ratio good results will not be obtained.

(Continued on Page 166)

Fig. 6—At the indicated efficiencies, the Btu. delivery from oil into steam or hot water may be determined here



At the right is shown the Field Building, tallest structure in Chicago, the first four floors and basement arcade of which are supplied with more than 270,000 c.f.m. of air



"As clean as the air you breathe" now has added meaning in the tallest building in Chicago. A new principle of air cleaning handles 16,000,000 cu. ft. per hour

99% Pure—*Air Cleaning . . .*

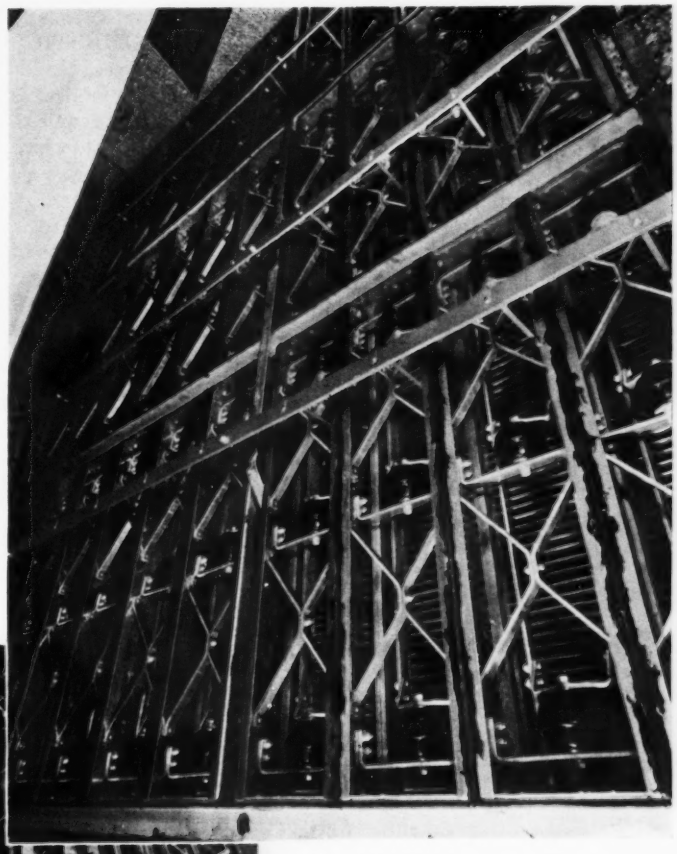
IN Chicago's downtown loop area where annually the dirt deposited out of the atmosphere averages a thousand tons per square mile, engineers are producing air which removes up to 99 per cent, by weight, of all particles in the atmosphere, even those which are as small as four-millionths of an inch in diameter and almost submicroscopic. In every cubic foot of city atmosphere millions of tiny particles may remain continually suspended and it has been found that they can be removed by electrical treatment.

Dust particles are removed by a simplified process of electric precipitation. By this process, impurities are taken from the air by charging all particles electrically and then pulling them out as they pass through an electrostatic field, in a manner similar to that by which a magnet attracts iron filings.

In the cleaning process the air is first bombarded by ions—minute electrical charges—emitted by wires as fine as human hair and which carry a charge of 12,000 volts. The ions attach themselves to particles in the air thus giving the particles an electrical charge. Next the treated air is drawn through a series of cells consisting of alternately spaced high potential and grounded plates. By charging the high potential plates at 5,000 volts an electrical field is established. As the treated air passes through these cells, the charged particles adhere to the plates and the air so freed of all solid matter passes on through ducts that lead to the areas being served by the equipment.

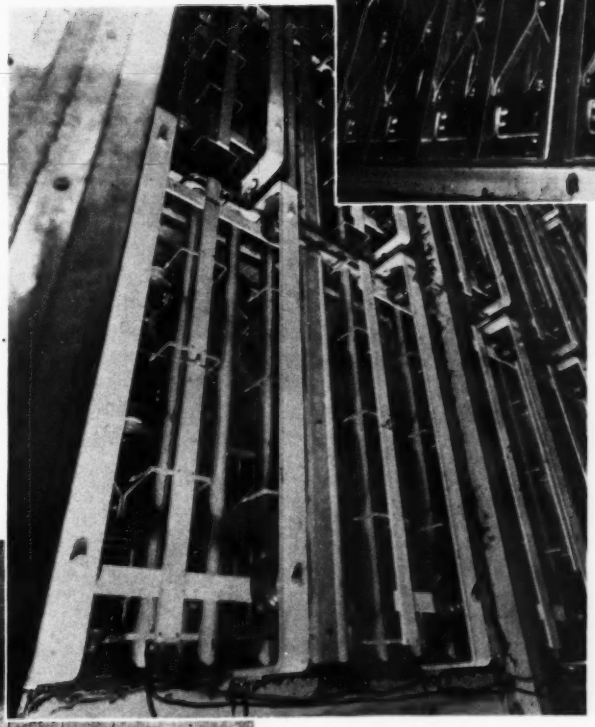
In the Field Building, first to have an electrostatic installation, 18 units have been installed which are capable of cleaning 272,000 cu. ft. of air each minute. In a

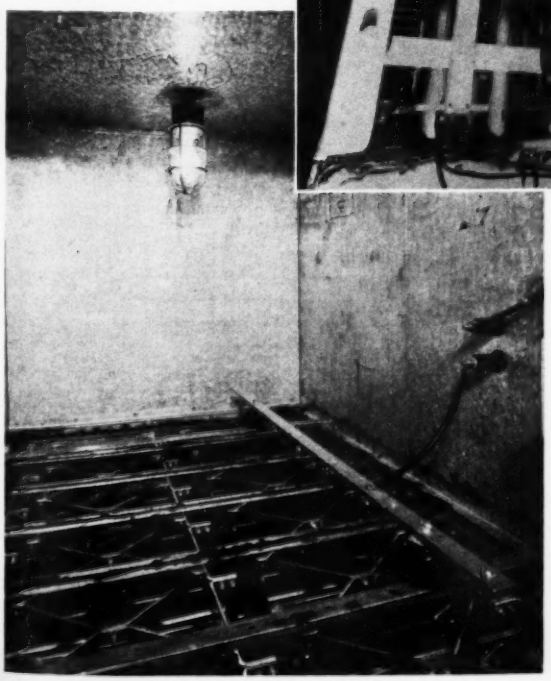
Above is shown a general view of three of the air cleaning units, the power packs and the door switches of the installation which has been made in the Field Building



Immediately above is a view which shows the clean air discharge side of one of the precipitation units. This is one of eighteen similar units which are installed in the Field Building

The view below shows how the clean air outlet of a collector cell assembly appears as seen through an inspection door at the top of the air duct of a vertical cleaner unit





At the left is a view showing the side of the unit which dirty air enters. The unit in question has a rating of 22,500 cu. ft. per min.

year's time, it is estimated, the installations will have collected approximately 600 bushels of impurities, 90 per cent of which will consist of particles one-hundredth the diameter of human hair. By weight, the collection will consist of one-third ash; another third fixed carbon, soot, lampblack and other derivatives, and the remaining third volatile matter such as oils and greases. Sulphur, bacteria, pollen in season, and other substances found in suspension in the atmosphere of any city, are also deposited on the plates.

Tests conducted for several years show that in Pittsburgh, where units have been installed as part of warm air heating systems, curtains which ordinarily are changed every two weeks remained clean for months.

The usual sooty smear surrounding warm air outlets is eliminated. Annual wallpaper cleaning is not required. All because the infinitesimally small particles which cause the greasy type of dirt in buildings and homes are not permitted to settle on walls and furnishings.

The average particle in cigarette smoke is approximately four-millionths of an inch in diameter. Billions of such tiny particles are emitted with each puff of smoke. If magnified 250,000 times, the larger particles which readily pass through 200 mesh screens would appear to be 50 ft. in diameter. An averaged sized dirt particle of the type which fills the atmosphere, at this magnification would appear to be as big as a baseball. However, enlarged to the same degree, the average sized smoke particle would be a little more than an inch in diameter or slightly smaller than a golf ball. The ability of the electrical air cleaner to remove particles of the smallest size from the air provides a solution to the dirt problem of city buildings.

AIR RESPIRATORY PATIENTS

Physicians have already tested the reactions of hay fever and asthmatic patients to electrically cleaned air. Those with hay fever caused by breathing pollen laden air have found almost immediate relief. Asthma sufferers whose troubles result from breathing the dusty air of cities have been aided. Certain types of sinus ailments also have yielded and continuing laboratory work is expected to develop more data for such treatment.

Recently bacteriological tests were completed to determine the effectiveness of the cleaner as a means of removing certain organisms from the air. Water suspensions of two types of organisms were sprayed into the air in numbers that averaged 650,000,000 to each 1,000 cubic centimeters, a volume of air roughly corresponding to one quart. This bacteria filled air was then passed through the cleaner and when tested following the operation was found to average one microorganism per quart of air. As a method of ridding air of bacteria, the electric cleaner was discovered to be one microorganism short of perfection.

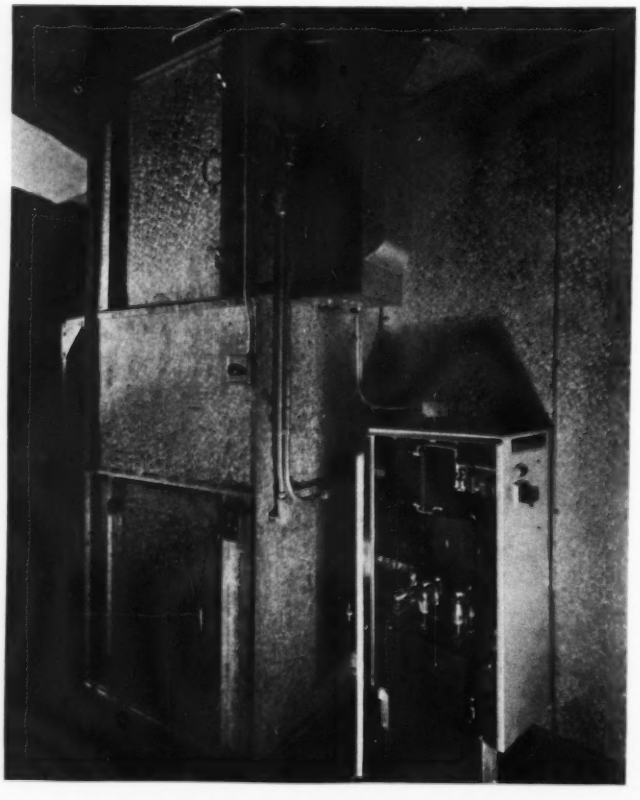
PIONEER INSTALLATION

Although the Field Building installation is the pioneer installation for office buildings, engineers have found applications for the process, other than those for homes and offices.

It will soon provide clean air in one of the chemical laboratories of the Bureau of Standards in Washington; it is being considered for hospitals; in an automatic telephone exchange it prevents dust from collecting on switch contacts and failures from this cause have been reduced 60 per cent; one industrial application now cleans the gas for steel mill furnaces to prevent the nozzles of the burners from clogging with foreign matter; art galleries may use it as a protective measure to prevent dirt scum from deteriorating precious paintings and sculpture.

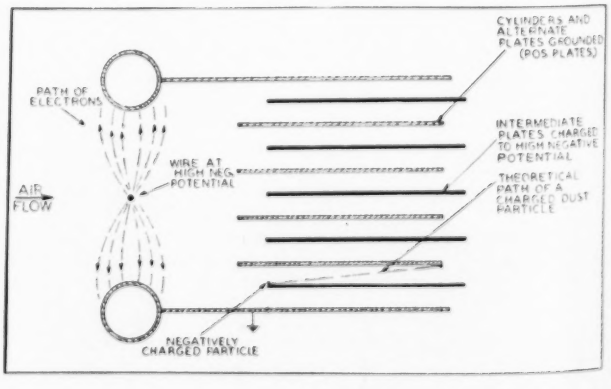
Current costs to operate the equipment are comparatively low. A unit for the average home requires about as much current as is consumed by a 60 watt lamp and the Field Building system, cleaning air for the lower arcade, the first, second, third and fourth floors, operates on a proportionately low basis.

The precipitator consists primarily of a system of cells made up of flat aluminum plates. In each cell there are 111 plates, each 8 by 9 in. in size. The Chicago system includes 369 cells or 40,959 plates. The tungsten ionizing wires are but .005 in. in diameter and nearly half a mile of this wire is required for this installation. Dirt collected by the units is cleaned off every month or six weeks.



The particular air cleaner shown at the left has a capacity of 4,500 c.f.m. and is arranged for vertical air flow. The large power pack is for an adjoining horizontal flow unit

Below is a simplified, diagrammatic sketch which shows the principle of operation of these air cleaning units installed


CYLINDERS AND ALTERNATE PLATES GROUNDED (POS. PLATES)
PATH OF ELECTRONS
INTERMEDIATE PLATES CHARGED TO HIGH NEGATIVE POTENTIAL
WIRE AT HIGH NEG. POTENTIAL
THEORETICAL PATH OF A CHARGED DUST PARTICLE
AIR FLOW
NEGATIVELY CHARGED PARTICLE

Hot Water . . .

Once a luxury but now a necessity. This article tells how and why domestic hot water systems function according to basic principles

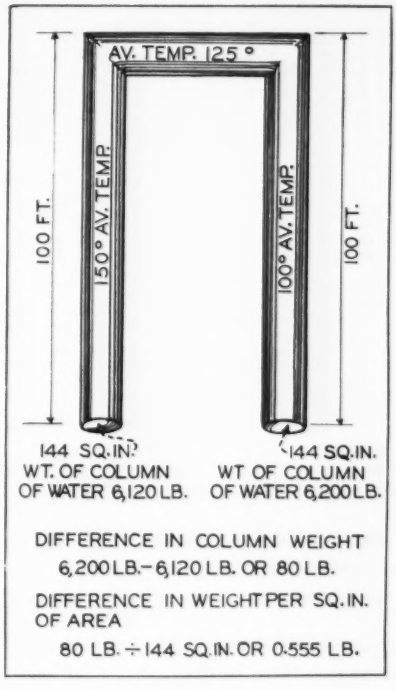


Fig. 1—If this pipe were connected at the bottom, a condition of circulation would result

ALL large domestic hot water installations require circulating systems in order to supply hot water at each fixture promptly. If this provision were not made, the entire volume of water in the piping between the hot water storage tank and the fixture would have to be drawn off before any hot water could be secured. In a large installation this might mean a delay of many minutes and a waste of many gallons of water. In smaller installations circulation is not absolutely necessary but at all times is a convenience. This is especially true in cases where the usage of hot water is not frequent enough to keep the supply line hot even after the water has once been drawn out in the morning. In many residences hot water is seldom obtained at the upstairs bathroom lavatory because no one is willing to wait long enough to draw off the cooled water in the line. In former years when water back or water front installations with a storage tank located in the kitchen were more frequent, this difficulty was not so marked; but with installations of domestic hot water systems located in the basement in connection with the house heating plant, the pipe runs are longer and the need for circulation is correspondingly greater. Anyone who has had hot water supplied from a properly designed circulating system is likely to insist on this modern convenience in spite of the slightly increased cost.

The system which gives the greatest saving in time and convenience is one in which the circulation of the water is carried as close to all hot water fixtures as possible. Usually a good specification will call for the circulation

Fig. 2—This drawing shows the difference in weight of the two columns of water indicated here

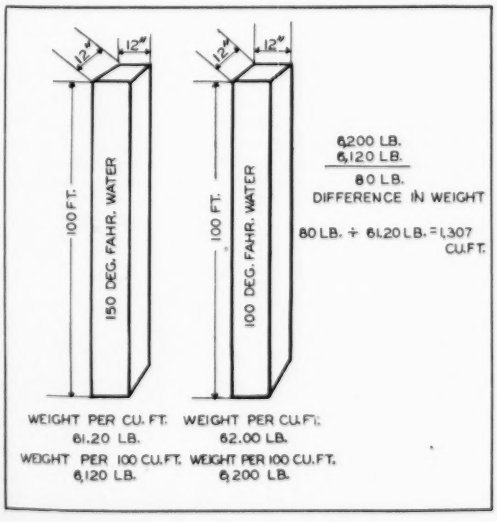
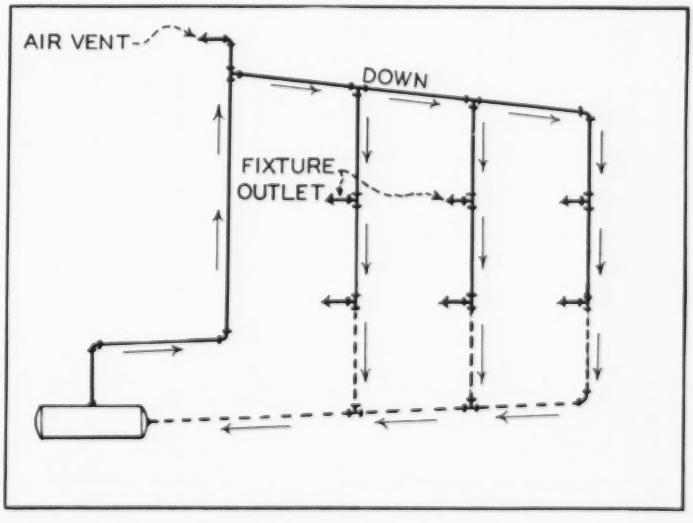
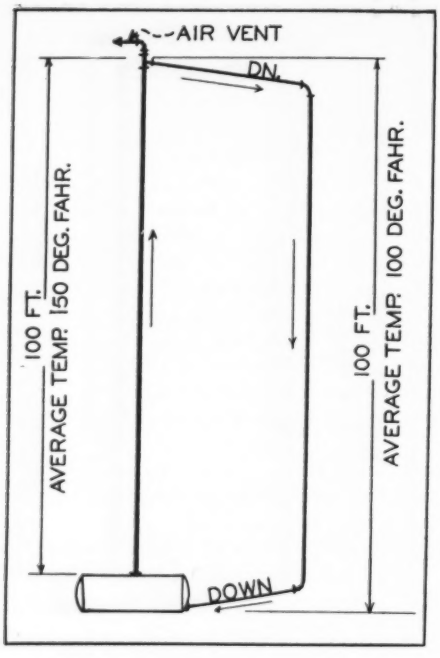


Fig. 3—Shown here is a simple arrangement of a typical downfeed system of circulation where the venting is from one main





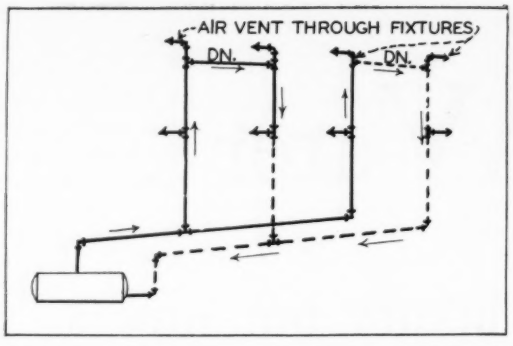


Fig. 4—At the extreme left is shown the diagram given in Fig. 13 arranged for an actual installation. It is necessary to vent on the highest point of circulation

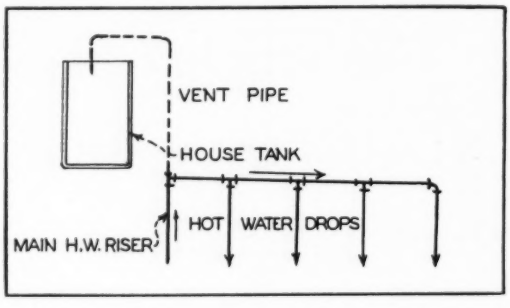


Fig. 5—This is a modification of the upfeed system where part of the fixtures feed from a branch which is taken from the upfeed main

Fig. 6—Left, shows a venting arrangement which may be used if there is a house tank. The vent is run up and turned over into the tank

to be carried within 3 ft. of each outlet. The saving in first cost of making this distance greater is so small and the results in service so undesirable that it may be considered poor policy to install a circulating system that does not carry the hot water just as close to the fixtures as possible. In order to have a system circulate as it should, it must be properly designed and the basic principles governing its operation must be understood before a successful design can be made. Just what are these basic principles?

Circulating systems are made possible by the fact that water, in common with practically all substances, expands and contracts with changes in temperature. For instance, the water in a container holding exactly 1 cu. ft. weighs 62.00 lb. at 100 deg. Fahr. But if this water is heated to 150 deg. Fahr., it will expand and some of it will overflow. The water which remains, still exactly 1 cu. ft., will weigh 61.20 lb. If 100 cu. ft. of water are imagined as arranged in 100 cubes 12 in. × 12 in. × 12 in. in size and piled, one on top of the other, we should have a column of water 12 in. × 12 in. at the base and 100 ft. high. See Fig. 2. At 100 deg. Fahr. this column contains 100 cu. ft. of water weighing

62.00 lb. × 100 or 6,200 lb.

while a similar column—also shown in Fig. 2—at 150 deg. Fahr. would weigh only

61.20 lb. × 100 or 6,120 lb.

and the difference in weight between the two columns would be

6,200 lb. minus 6,120 lb. or 80 lb.

How much will the height of the 150 deg. Fahr. column of water have to be increased before it will weigh the same as the column of 100 deg. Fahr. water? As the 150 deg. Fahr. water weighs only 61.20 lb. per cu. ft. and the added weight required is 80 lb., it is evident that the 150 deg. Fahr. column must have a height equal to

80 lb. divided by 61.20 lb. or 1.307 ft.

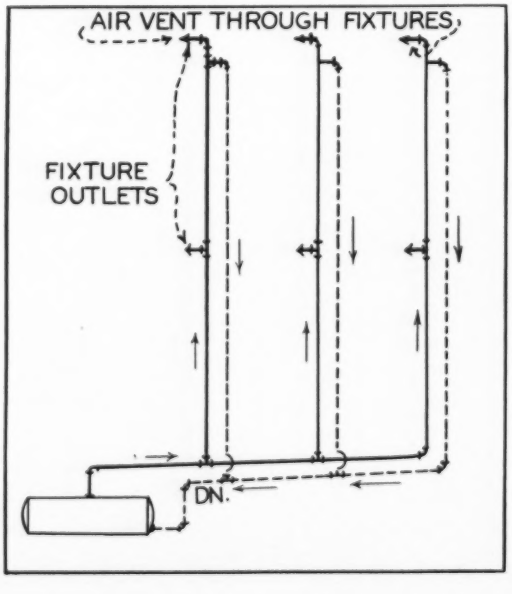
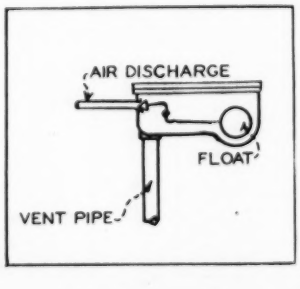
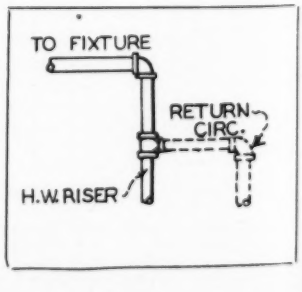


Fig. 7—At the left is shown an arrangement for the downfeed system for domestic hot water circulation. From the top of each vertical riser, just below the top fixture connections, a small return line should be connected

Fig. 8—Below and at the center, this shows one way of relieving air from the system. A special trap is placed at the high point of the system and air is allowed to collect in it; then the lowering of the float will relieve the air

Fig. 9—Below and at the right is shown another method of relieving air from the system. By the method shown here the venting is done through the fixture outlet. This particular method would not, however, be practical when employed with a downfeed system and with the main in the attic





added in order to weigh the same amount as the 100 deg. Fahr. column. This would make its total height

100 ft. plus 1.307 ft. or 101.307 ft.

These conditions are illustrated in Fig. 14, and the calculations may be proved by multiplying the height of the 150 deg. Fahr. water column by its weight per ft.

101.307 ft. × 61.20 lb. equals 6,200 lb.

Now if an inverted U pipe is arranged as shown in Fig. 1 and if this pipe is assumed to have an area of 144 sq. in., each vertical foot of this pipe will contain one cu. ft. of water. If one leg of this U is filled with 100 deg. Fahr. water and the other leg with 150 deg. Fahr. water and both legs are made 100 ft. high, there will be a column of water weighing 6,200 lb. on the 100 deg. side of the U, and a column of water weighing 6,120 lb. on the other side. The water in the horizontal pipe does nothing to add to, nor subtract from, this difference in weight as any effect which it may have will be equally divided between the two sides of the loop. Should the two legs be connected at the bottom, a flow would result allowing the 100 deg. Fahr. water to pass over into the 150 deg. Fahr. side through the bottom connection and the 150 deg. Fahr. water to pass over to the 100 deg. Fahr. side through the top connection. This flow would continue until the average temperature in each leg was the same. At such time the weight of the two columns would be equal and the force which caused the flow would have disappeared.

As long as this temperature difference is maintained, in a system closed at the top and bottom, by adding heat to the high temperature side and withdrawing it through radiation from the low temperature side, circulation will continue. Perhaps this statement should be modified to say that circulation will continue if the force causing circulation is greater than the amount which is absorbed in overcoming pipe friction.

The question now arises as to how much motive power there is to circulate the water. The loose term "circulation head" is sometimes applied to this motive power. Since the difference in weight between the two columns of water in the illustration amounts to 80 lb. and this difference in weight is distributed over 144 sq. in. of area, the difference of weight on each square inch amounts to

80 lb. divided by 144 sq. in. or 0.555 lb.

and changing this into feet of head by dividing by 0.434 lb. per ft. proves that the difference in feet of head is about 1.31 ft. which checks with the added head necessary to make the columns equal in weight as determined in Fig. 14. The force tending to circulate the water is equal, therefore, to a hydraulic head of 1.3 ft. This head is a direct function of the height provided the average temperatures of the two columns remain the same. If the loop were only 50 feet high, the circulation head would be

1.3 ft. × 50/100 or 0.65 ft.

and with 10 ft. of height the circulation head would amount to

1.3 ft. × 10/100 or 0.13 ft.

and it should be noted that when the vertical height reaches zero, there is no circulation head.

Owing to the fact that the tendency to circulate is entirely governed by the height for a given temperature

(Continued on Page 168)

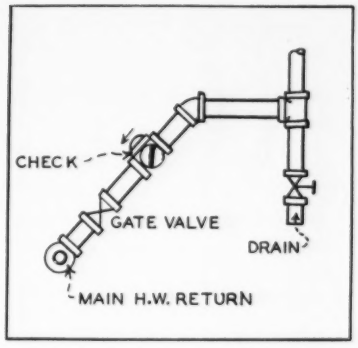


Fig. 10—This shows an arrangement whereby a 45 degree check valve may be used in place of a 60 degree valve. This check valve should be installed in such a manner as to offer as little resistance to the flow as is possible

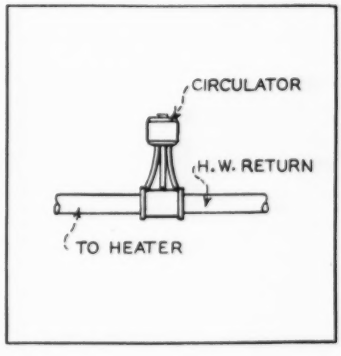


Fig. 11—"when water must be circulated below the level of the heater . . . a circulator is placed in the return line and may be arranged to run all of the time or by thermostatic control cutting in at 100 deg. Fahr. or slightly less

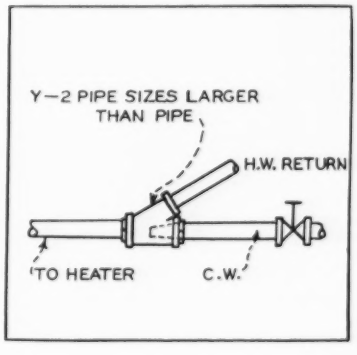


Fig. 12—When this type of fitting is used, every time hot water is drawn off at any fixture, a corresponding amount of water enters the cold water make-up and accelerates the circulation by the injector action

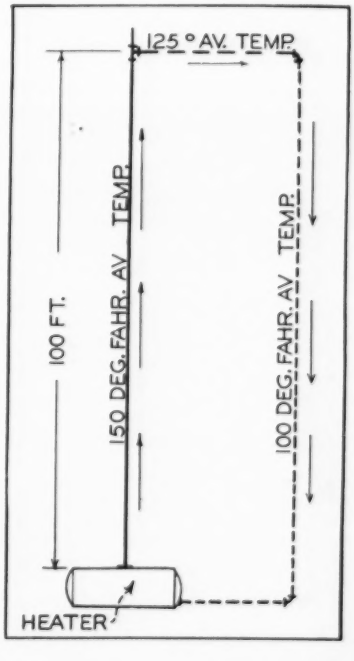


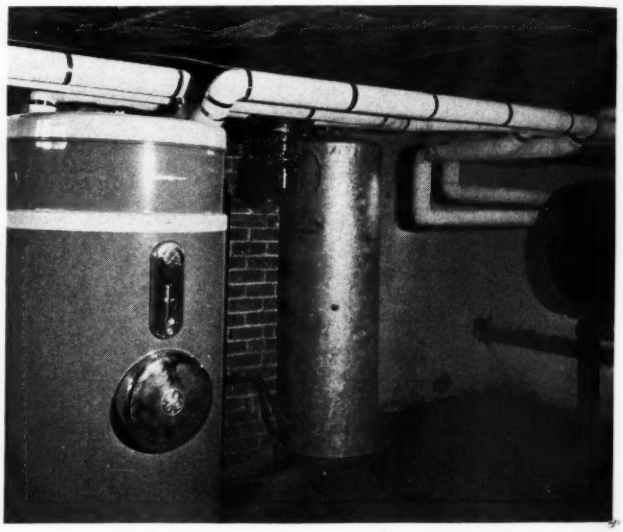
Fig. 13—This drawing indicates diagrammatically the importance of the location of the heater in obtaining hot water circulation. For this purpose it is necessary to have circulation head, and this means the height above the heater which can be obtained

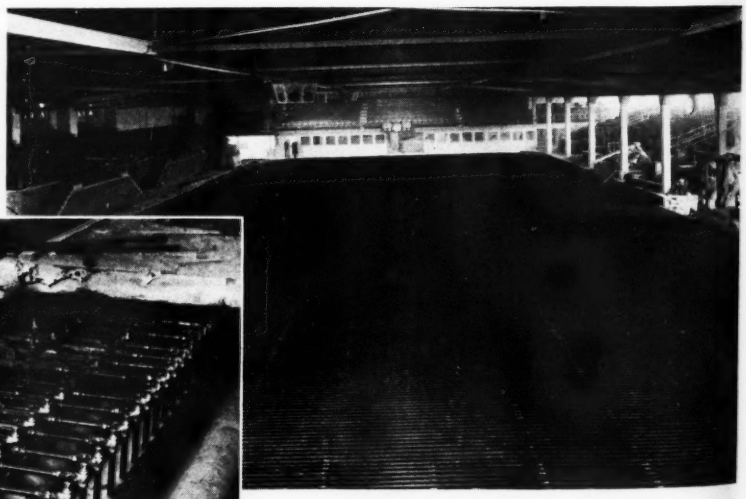
Welded Piping—*Applications*

In many cases use of welding equipment permits savings and improvement of work

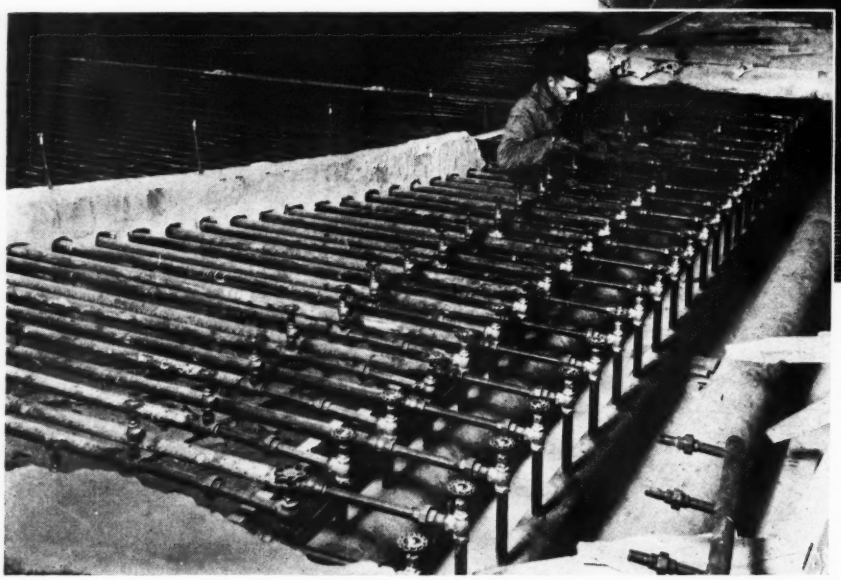
WELDING and its applications have been of increasing interest to our industry for many years. The financial benefits and improvement in quality of work which frequently are made possible through the use of welding have long been known to contractor-dealers. Most of the applications of welding are well known, such as: cutting out old heating lines and general razing work; fabrication of unusual shapes; fabrication of ducts and transformation pieces; and fabrication of jigs and fittings.

Reproduced on these pages are a few of the many applications of welding. The views of the skating rink which are shown required nine miles of pipe to carry brine to freeze 14,800 sq. ft. of skating surface. An idea of the size of this installation may be gained from the fact that two compression units, each with a total refrigeration capacity of 140 tons were required. Other pictures show heating installations that have been made, demonstrating the flexibility of these applications. Another use of welding is shown in the fabrication of sheet metal and structurals in air conditioning work.

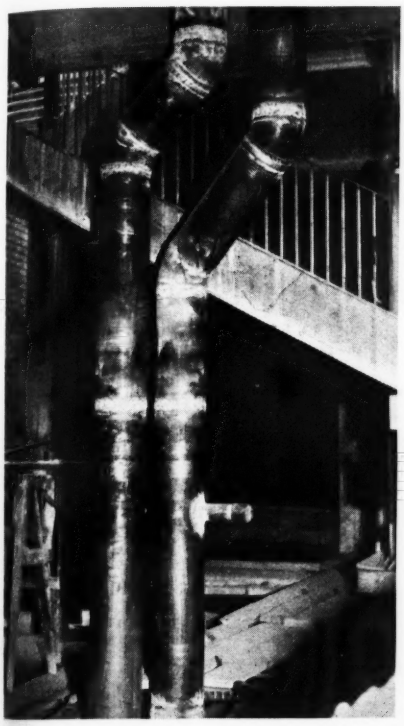


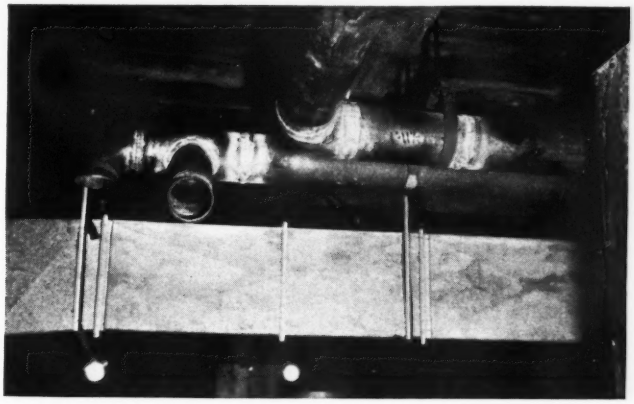


The illustration which appears at the upper right of this page shows the application of welding in a residential heating system. Through the use of welding more usable space has been secured

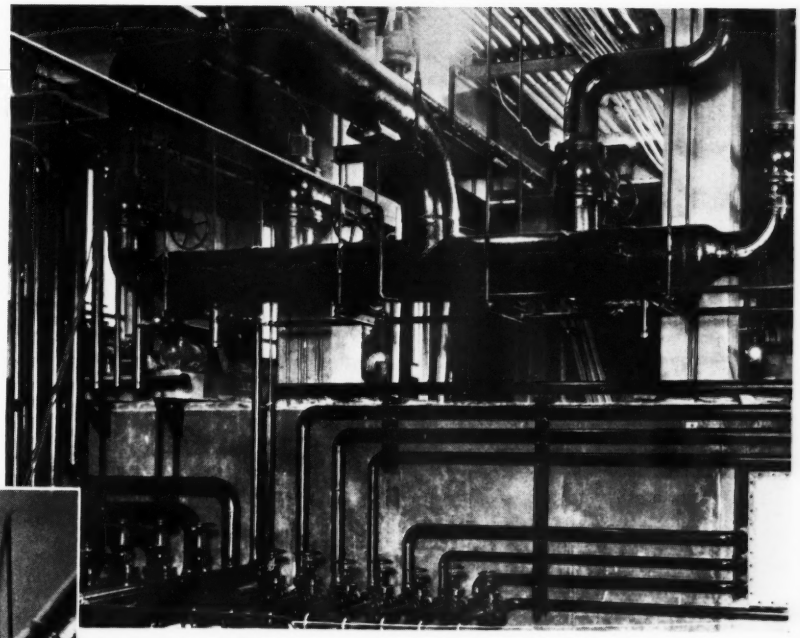


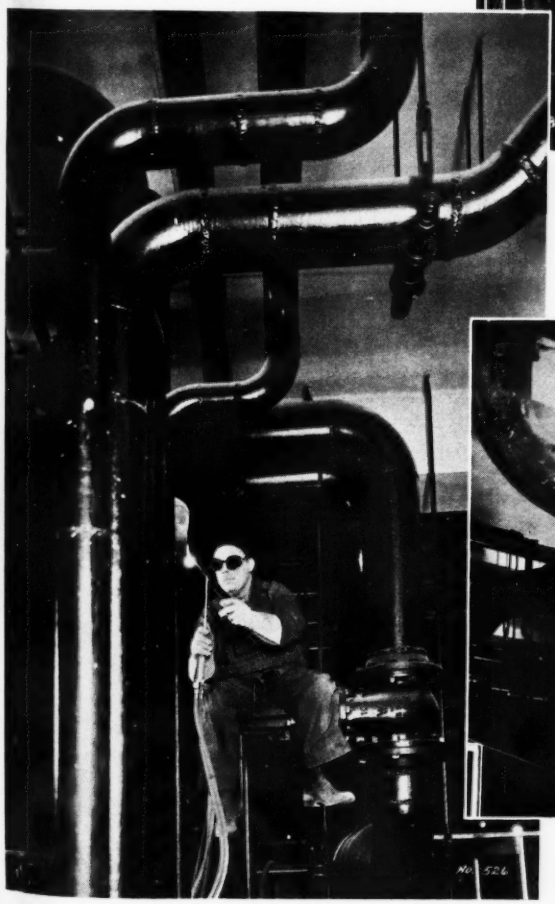
The views immediately above and at the left illustrate the welding applications at a large Midwestern skating rink. The view above shows the brine coils which were made permanently leakproof by welding. The view at the left shows the input and discharge headers which were completely fabricated by the same process of welding



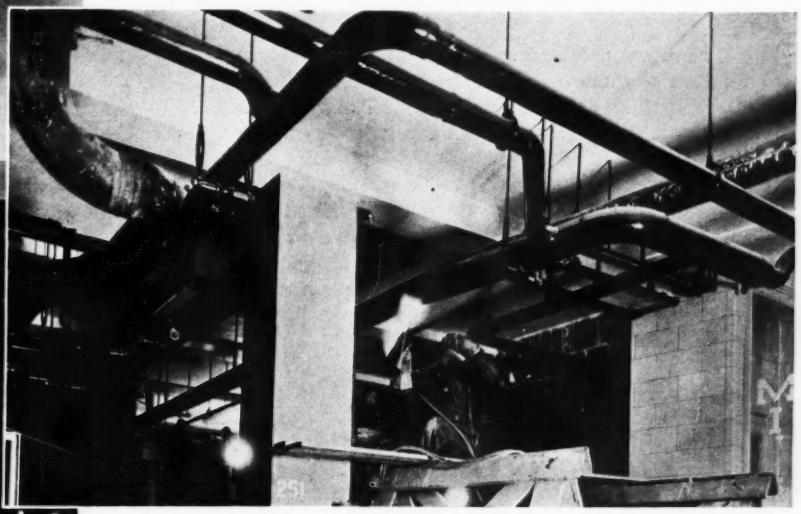


Immediately above is an illustration of bronze welding on 10 in. red brass lines for an air conditioning system. At the upper right hand corner of the page is another illustration of the application of welding to air conditioning





This group of three photographs show how welding was used on the piping system in a scientific building. Above is a view showing a completed section of the piping. At the left is a view showing finishing touches being applied to the piping system. Below is still another view of the finishing touches



Price Answer—*Sales Plan*

Simplifying the sale of plumbing and heating products, appliances and air conditioning has been a business theory that has paid dividends

"THE home owner today can be sold a boiler and an automatic heating system as package merchandise just as he is sold for his home," says J. A. Kiesling, the man who has proved that complete jobs with all prices quoted with the fixture or appliance installed can be sold in Houston, Texas. As Houston seems to be the average type American city, Mr. Kiesling's methods may be adaptible to any plumbing and heating merchandising establishment operating under similar conditions.

In 1934 this firm built one of the finest plumbing and appliance stores in the South at 4848 Main Street, Houston, putting into practice the firm's policy, which is explained by Mr. Kiesling: "It has been our theory for a number of years that most plumbing, heating, air conditioning and domestic refrigeration installations are complete merchandise sales and can and should be sold in the customer's home complete. We have been working closer to this policy from year to year, and today, we sell most domestic jobs installed. We sell attic ventilation, bath rooms, room coolers and such merchandise and appliances complete and installed, quoting *only* the installed price.

AIR COOLING PACKAGE UNITS

"We handle air cooling up to three tons in the package units. We do not quote a price on equipment on our sales floor and then state how much extra the installing will be.

"When we are talking heating to a prospect, we do not have to quote him a price on the unit; then figure up the piping and the various installation costs. We tell him instantly what the flat rate is for each size unit installed.

"Sure we get stuck on a couple of sales a year. But getting stuck on a unit cooler is not like getting stuck on a 20 ton air conditioning job. Where we may get stuck on two jobs by selling jobs installed without making individual specification and quotation sheets, we win 20 additional jobs by simplifying the sale of this type of merchandise."

In reasoning his point, this plumbing and heating merchant refers to the automobile field. Automobiles today are quoted on a delivery basis to the prospect . . . the buyer of a new car is interested only in the delivery price and not the f.o.b. price, and he is quoted on the car complete rather than merely the car with all the extras such as bumpers, windshield wipers, and other things being quoted as extras.

"We have found out that the prospect is not interested in show room prices; but in prices in their own offices, in their own homes, etc.," says Mr. Kiesling. "We don't give any price on tubs; we tell the prospect how much the tub will cost in her own bathroom with every detail complete.

"We carry a complete line of fixtures and appliances, displaying many appliances in the stores such as gas ranges, laundry equipment, lavatories, room coolers, electric refrigerators, attic ventilation systems, heating systems, water fountain units, water heaters and kindred merchandise.

"We carry the highest price water heater in Houston; we try to have the highest price lines. It is easier to sell quality plumbing and heating appliance merchandise. Our retail organization is trained to sell performance; they don't talk about the price of a water heater or a gas range; they talk about the special pilot light, the special dip on the paint and other things, and they get money for these added merits. Then they show the prospect that it is cheaper to pay more and get good appliances, for after the year's guarantee is up, the user will not be dollared to death with repair bills."

In carrying forward its policy of merchandising, this plumbing and heating firm has operated four branch stores in Houston. These branches carry certain plumbing fixtures, automatic heating systems, room coolers, attic ventilation systems, water heaters, electric refrigerators, laundry equipment, gas ranges and other merchandise adapted to specialty merchandising.

PERSONNEL TRAINED BY STORE MANAGER

Each store manager hires and trains his own personnel in so far as sales work is concerned; however, general sales supervision is given by Claude J. Corey, secretary-treasurer and sales manager of this firm. All installment paper is handled by the parent organization; however, the installment sales are closed right in the stores.

A significant thing about this set-up is that all salesmen handling the package sales are trained to handle any and all the lines. The man who started out to close a domestic electric refrigerator sale may end up by selling

Is Based on Installed Cost . . . . .

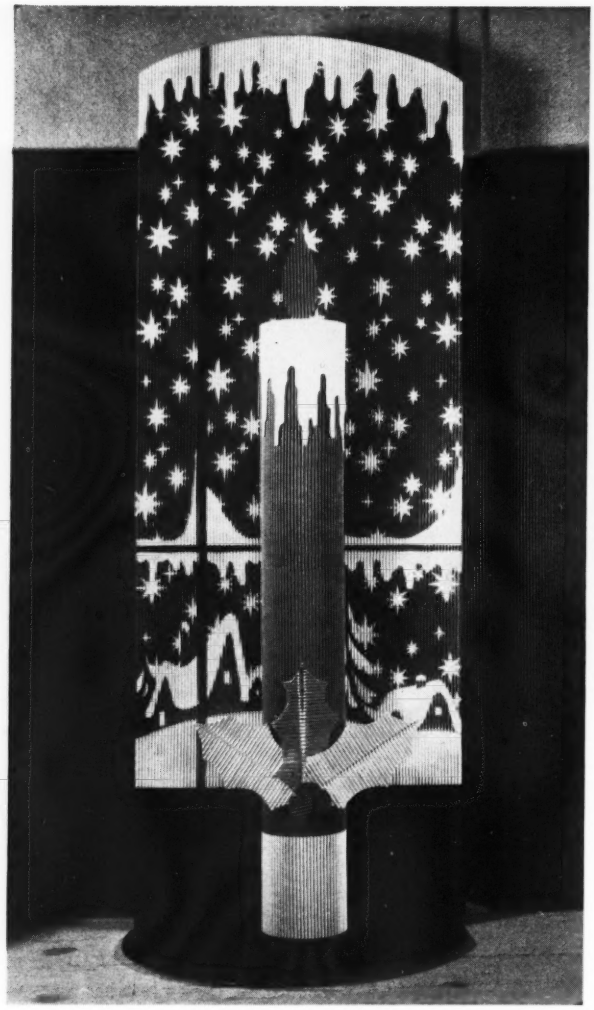
the home owner a $429.00 room cooler, a cooling system for his office, a domestic water heater or laundry equipment for his home.

This business is thoroughly departmentalized, the contracting business being one branch, the sales and merchandising of packaging being one division, plumbing and heating repair work being a big department, and the distributorship for 42 counties in Texas for one type heating equipment being one department. However, all departments dovetail so that any department head can be away and the work go on without interruption.

This firm has based its program on an operating plan designed to meet the needs of today and to be adaptable to any trends in merchandising and distribution. The stores operated by this firm are thoroughly modern; the main store being not only modern in design, but the last word in a modern air conditioned building where the benefits of air conditioning can be demonstrated.

These stores are kept attractive, for it is found that eighty-five per cent of the prospects who are brought to the show rooms on a definite appointment after the salesmen have contacted them in their homes are sold some major article of merchandise, if not buying the original appliance, buying something else. Incidentally, this firm sold $140,000 of household refrigerators alone during an eight month period and other package merchandise in proportion—sold at a profit and proving the feasibility of stressing all units completely installed.

A general view of the main office of this merchandising minded firm of contractor-dealers. In addition, the firm operates four branch stores in Houston, Texas



Dress Up!—

Window displays buying prevalent

PLUMBING and heating contractor-dealers are presented with a real merchandising opportunity in the Christmas shopping season. It is, without a doubt, the most profitable of all special event selling seasons in the year. This statement holds true for all businesses and not just a specialized grouping as is mainly the case at other holiday seasons. However, in many cases, contractor-dealers have not taken full advantage of the sales possibilities which the season offers.

In order to appreciate fully just how great a sales opportunity is offered by the Christmas shopping season, one need only to look at the special activities carried on by other businesses to capitalize upon it. Department stores, florists, candy shops and clothing concerns spend great amounts of time and money in attempting to capture the attention of the Christmas market. It is a matter of record that these same concerns register their greatest sales totals during the Christmas season, so it would appear that money and effort spent in Christmas merchandising has a tangible effect upon sales made and profit secured.

Within the past few years there has been a definite and decided change in the Christmas buying habits of the nation. No longer is Christmas buying limited to such personal gifts as neckties for father, stockings for mother, a mechanical train for junior and a doll buggy for sister. Such a family is much more apt to buy something for the home and entire family this Christmas. It is the rule rather than the exception nowadays to purchase at least one gift which will bring added comfort and added enjoyment to the entire family. Certainly plumbing and heating products come within this general grouping. Appliance manufacturers have done an excellent consumer selling job in this connection and their efforts have been partially responsible for this changed attitude and Christmas buying habits.

Once it is apparent that a definite sales opportunity exists, the next and most important task for the plumbing and heating contractor-dealer is to set about capturing the market. A determined effort is necessary to capture the fancy of the buying public. Careful study of these problems is necessary if plumbing and heating products are to be regarded by the buying public as proper and logical Christmas presents.

The first step necessary in this regard is to provide a tie-in between plumbing and heating products and the

Shown on this and the facing page are four of the hand picked displays which are offered for contractor-dealers' use during the Christmas shopping season. Reading from left to right across the top of the two pages there are, first, a display designed for the small window, second, a similar but more elaborate display, third, a display for a large window. At the bottom of the page is a display which can be adapted to any size space since the candles at the sides can be moved about

For Christmas Sales . . . . . .

help to set the stage for the concentrated at Christmas time. They also make sales

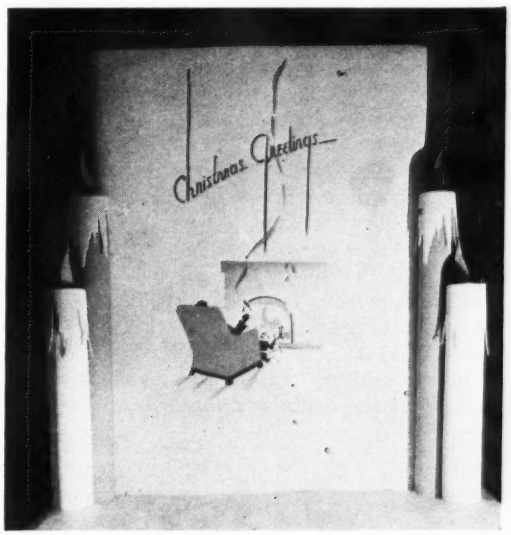
Christmas season. Even a carefully planned display of products and products alone in a contractor-dealer's window would not result in any greater sales than such a display would cause at any other time of the year. In fact, such a display might not have the sales effectiveness that it would have at some other season.

This brings to the foreground the necessity of provid-

(Continued on Page 159)

The displays which illustrate this article are delivered complete, ready to set up. Complete assembly instructions accompany each display. The display which represents a candle in front of a window is priced at $2.20; the Christmas tree display which bears the slogan, "Solve That Gift Problem Here," is priced at $4.50; the display showing the candle and the leaves and carrying the caption, "Gift Ideas," is priced at $7.85; the display which has the words, "Gift Suggestions," is priced at $6.75 with a number of display stands (shown in picture) or at $4.85 without the tops; the display whose caption reads, "Gifts for the Entire Family," is priced at $6.85; the display which is adjustable in size and flanked by the two candles is priced at $4.50 delivered. All the other displays have a slight additional cost for mailing.

Contractor-dealers can construct these displays themselves by purchasing the necessary materials from the manufacturer. Prices for the displays and display materials are set by the manufacturer. DOMESTIC ENGINEERING has no connection with the manufacturer. Orders and inquiries for the cost of building your own displays should be addressed to The Editor, DOMESTIC ENGINEERING, 1900 Prairie Ave., Chicago.



Decisions — *of Interest* . . .

Current rulings of the courts as applied to business are discussed here

WHERE a business man loans an employe to work temporarily for someone else, what is the liability of the employer if the employe causes damage or injury in the course of his work for the secondary employer to whom he has been loaned?

That question, as put, may seem a bit complicated, but is apt to arise in circumstances where a business man lets an employe temporarily "help out" a customer or some other business man. In California recently an employe was loaned to drive a car for a customer. While thus loaned, the employe became involved in an accident resulting in great damage. Passing on the liability of the original employer for the damage negligently done by the employe under these circumstances, the California court said:

"An employe may be loaned by his employer to another, so that the act done by the employe becomes the act of the employer to whom he has been loaned and for the time being the original employer is not responsible for the employe's acts." (Nichols vs. Hitchcock, 70 Pacific Reporter, second series, 654.)

F. O. B. SHIPMENT

The importance of the F.O.B. point to a merchant is emphasized in a recent decision by the Court of Appeals of Georgia.

There, the court pointed out that where goods are sold under a contract "F.O.B. cars at point of manufacture," they are "to be delivered to the carrier without cost to the purchaser and placed on the cars for shipment to the point of manufacture." Ordinarily, this means that the buyer pays the cost of transportation from the point of shipment.

In the Georgia case the seller of certain equipment under the arrangement for delivery F.O.B. cars at the point of manufacture, sued the buyer for the unpaid balance. The buyer attempted to deduct from the amount which he owed, the amount of the freight charges he had paid on the shipment. However, this was not permitted by the court. (Humphries vs. Frick, 192 South Eastern Reporter, 247.)

Under the ordinary rule of law an employer is responsible for damage done to a third party by his employe while the employe is proceeding in the course of his employment.

In a recent Texas case an employe was driving his automobile from his home to his employer's place of business for the purpose of starting the day's work. On the way he had an automobile accident in which a woman was injured. Later the injured woman sued the employer on the ground that her injuries were caused by the negligence of the employe while the employe was proceeding to his employer's place of business. Her argument was that inasmuch as he was on the way to his employer's business place, the employer was to that extent proceeding in the course of his employment. The Texas court, however, decided that the employer was not responsible for her injuries under these circumstances.

"Where an employer does not require his employes to use any particular means of travel in coming to their place of employment or returning therefrom," the court explained, "such employe is not engaged in the furtherance of his employer's business so as to render the employer responsible for the negligence of such employe while so engaged. If the employer's responsibility should be extended to cover such cases, then the employer would be responsible for all acts of all his employes while they were going to their work in the morning or returning home after working hours in the evening. Thus, a large department store with several hundred employes would be called upon to answer for all acts of negligence of its employes while going to or returning from their work. There would be no distinction whether the employe lived one mile or 100 miles from the place of his employment."

From this decision it would seem that an employer's responsibility for his employe's negligence is limited to situations where the employe is actually engaged in the course of his duties for the employer. (American National Insurance Company vs. O'Neal, 107 South Western Reporter, second series, 927.)

LIABILITY BECAUSE OF ADVERTISING?

A store conducted a toy balloon contest on the grounds of an airport and in its advertisements referred to an "air circus" which followed the balloon contest. A boy was killed during the so-called air circus, and the store was sued because of the boy's death. Was the store liable for his death because it had, to a certain extent, promoted the air circus through its advertising?

(Continued on Page 159)

Note: This article is presented for the purpose of showing the application of legislation to general problems. It should be emphasized that this material does not attempt to answer specific questions which have not been decided or which are to be decided. It is not an effort to determine how the courts might rule.

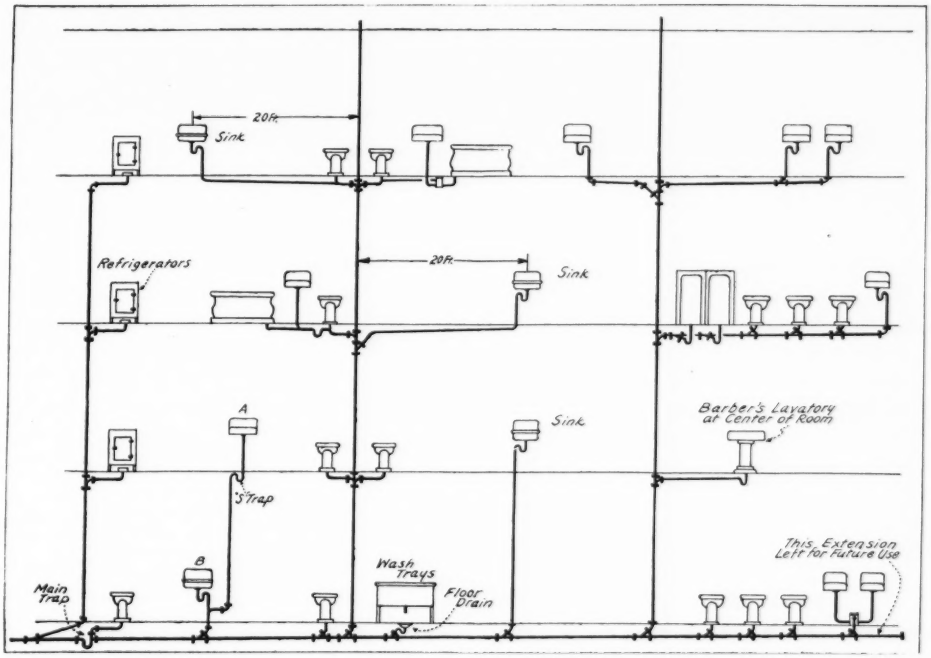


Fig. 1—It will be noted in this new drawing problem that none of the fixtures are vented, and in general, the layout is about as bad as is possible. One point for discussion might be the way in which fixtures A and B are at present connected and the possibilities for siphonage which exist in the installation

How—*Would You Install It . . .*

Presented here are reader's methods of connecting a building with a garage adjacent

In the August issue of Domestic Engineering there appeared on page 82 an elevation of a plumbing layout that was partly completed, and that was illustrative of many wrong connections. There are really two separate problems: the installation for the large building and that for the smaller rear building. These two installations are shown separately.

It was asked that, in working out the problem for the large building, the three stacks be left in their original locations. In Fig. 6 this has been done, but in Figs. 10 and 11 this point was evidently overlooked.

An important feature of the August problem is the connection of the drainage line of the rear building, with reference to the house drain of the large building. As it happens, Figs. 6, 10 and 11 show this point in three different ways. Fig. 6 shows the drainage lines of the two buildings brought together, apparently outside the large building in front. Fig. 10 shows the two drainage lines entirely separate all the way to the sewer. Fig. 11 runs the same main drainage line for both buildings. We favor the Fig. 10 method of keeping the two lines entirely separate. Fig. 6 in which they are kept apart until outside the foundation walls of the house in front, comes next in our favor.

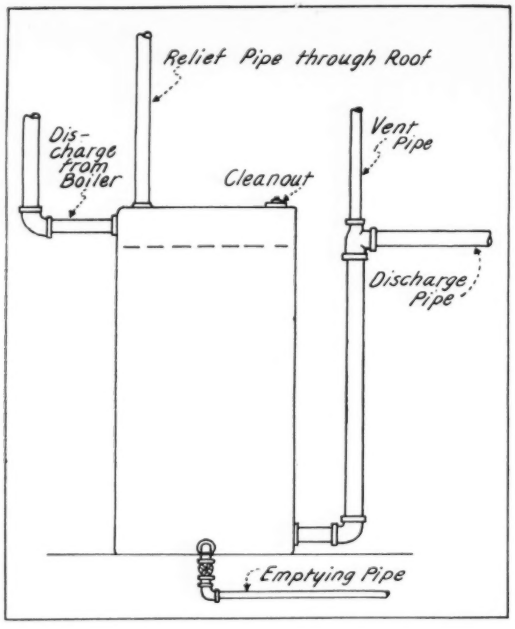
The point is that the rear building houses a garage, and, even when well protected, there is some danger that gasoline may find its way into the main drain.

Fig. 6 is submitted by A. G., Louisiana. Lavatory A is treated as being in a bathroom group, while lavatories B, C and D, which bear the same relation in their own fixture groups that A does, are connected up with sinks. In the absence of floor plans which would definitely prove this point, exception cannot be taken to the connections that have been used for B, C and D. These same connections are to be seen in Fig. 10 also, where the venting is run from the wash trays to the kitchen sink and thence to the bathroom fixtures.

In the case of the water closets E, F, G and H, it is no doubt intended that the bathtub vent shall in each case act also as the water closet vent. This would doubtless be allowed under some codes, even if 1½ in. instead of 2 in., but it seems that more effective venting will be done by the regular method shown in Figs. 10 and 11.

While the venting of the two wash trays and cellar sink at the left is entirely correct, more vent pipe is used than would be required if installed as in Fig. 11. We think a better job would be done on the bathtubs if continuous venting were used, as seen in Fig. 10.

The main vent for the 4 in. stack should return into



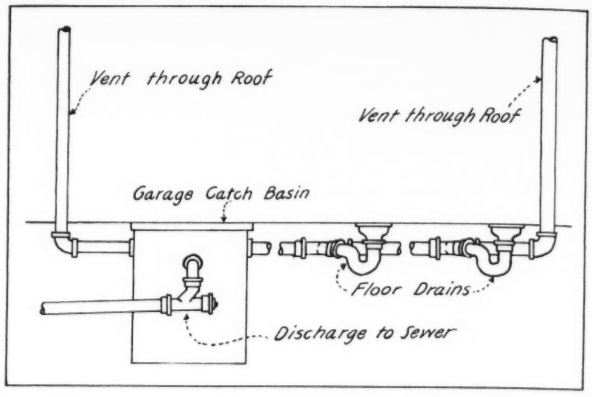


Fig. 2—At the left are shown the connections for a vertical type of condensing tank to be used in connection with the garage plumbing problem. A horizontal type tank is shown in Fig. 9

Fig. 3—Directly above is a diagrammatic drawing which indicates connections for a garage catch basin which has a tight cover. This catch basin receives all the dangerous wastes created here

the stack rather than end with a quarter bend into the cellar water closet. This bend offers opportunity for the collection of scale, etc.

We cannot see the purpose of the connections M and N, and think that A. G. must have intended something that does not appear.

The sizing of pipes was asked for, and Fig. 6 has complied. This sizing is well done. Evidently in A. G.'s locality, wash tray vents have to be 2 in., whereas in most codes 1½ in. is called for. We think 4 in. from the rear building would be sufficient. In northern localities, where frost occurs, the 2 in. stacks would have to increase to 4 in. through the roof.

Fig. 10 was made by A. C. H., Massachusetts. The chief criticism is of his fresh air inlet connection back into the venting system. This pipe is not intended to

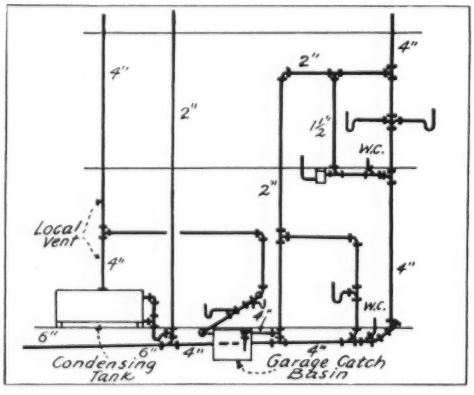


Fig. 4—This drawing was submitted by A. G. Louisiana and illustrates the manner in which he would make the garage connections

vent the main trap. If it was, it would need to be connected on the sewer side of the trap rather than on the house side. As its name implies, this pipe is for the purpose of bringing a supply of fresh air into the plumbing system, and to accomplish that purpose it should be

run to the outside air, either into the lawn or to the outside face of the foundation. As it is, it would be possible for air to circulate in the manner shown by the arrows.

Water closet vents ending in a sharp bend, as shown,

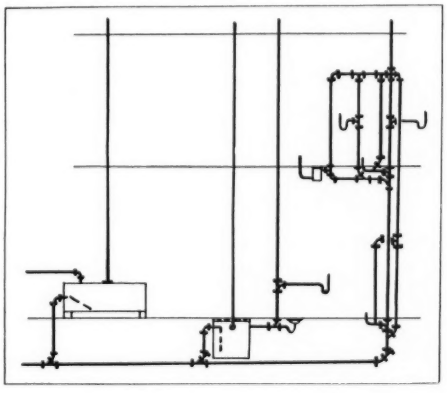


Fig. 5—Both ventilation pipes for the garage catch basin open into the basin above the water line and are therefore effective

provide opportunity for collection of scale and partial closing of the vent.

Fig. 11, by E. J. T., New Jersey, is very good except for the top floor lavatories. No doubt the stacks were moved over so they would be closer to the sinks, but in doing this the two lavatories were left in an awkward position. Not often would it be practicable to run so long a horizontal waste line as required here. We believe most codes would call for the venting of these two pairs of lavatories, although siphonage of the traps without venting would be highly improbable.

The same criticism is to be made of the water closet vents as in Fig. 10 and also for the flat offset on the main vent stack for the bathroom stack.

Consideration of the plumbing installation for the rear building is shown in Figs. 4, 7 and 5. Fig. 4 was submitted by the maker of Fig. 6; Fig. 7 by the maker of Fig. 10 and Fig. 5 by the maker of Fig. 11.

In handling the garage drainage, Fig. 4 illustrates a

tight catch basin, taking garage drainage into it from several floor drains at different points about the garage. Figs. 7 and 5 show a catch basin with a perforated cover, the latter also carrying a floor drain into it. All of these methods are in use.

In Fig. 3 there is shown a garage catch basin with tight cover, and with floor drains discharging into it. Fig. 8 shows a garage catch basin with perforated cover, this catch basin receiving all the dangerous waste that is created on the premises.

In both Fig. 3 and Fig. 8 it will be noted that there are two lines of vent through the roof. This is usually considered to be good practice. When there are two such pipes, the ventilation of the upper part of the catch basin, where the gasoline fumes are more concentrated,

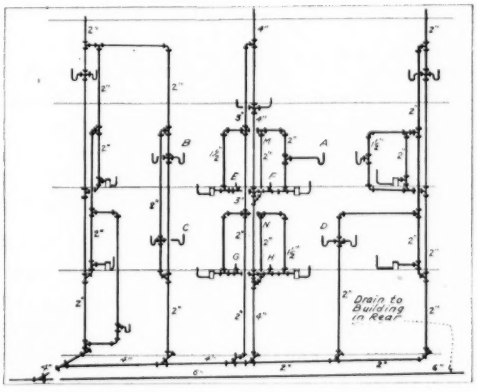


Fig. 6—A. G. Louisiana submitted this drawing. For connections showing the manner in which the garage was laid out see Fig. 4

will be stronger. The rapid removal of gasoline is of importance in this work.

Figs. 4 and 5 show two lines of vent pipe through the roof, Fig. 7 only one. Venting the garage catch basin into the vent line from the condensing tank, as seen in Fig. 4 is not a good practice. This vent should pass separately through the roof. Also, the other ventilation pipe for the catch basin will not do the work expected of it, for it is actually only a vent such as is used to prevent siphonage, and as it is connected here will not ventilate properly. Comparison with the ventilation of Fig. 5 will show that both these ventilation pipes open into the garage catch basin above the water line and are therefore effective.

In Fig. 8 a lavatory connects into the garage catch basin. Often in garages, automobile parts are washed in pans containing gasoline and this is emptied into the lavatory or sink. This constitutes a dangerous condition unless such waste finds its way into the catch basin.

In considering the condensing tank it should be re-

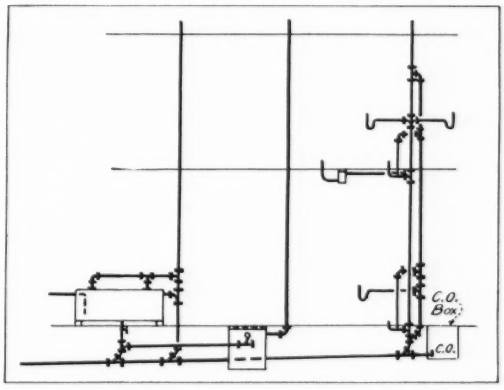


Fig. 7—A. C. H., Massachusetts, submitted this drawing as part of his solution for the August drawing problem. Also see Fig. 10

membered that water should not be allowed to discharge with the drainage system at a higher temperature than 140 deg. Fahr. The condensing tank is used to cool water discharged from steam boilers at temperatures higher than 140 deg. Fahr. before allowing it to enter the drainage system.

CONDENSING TANKS

As seen in Fig. 9, the hot water should be taken into the condensing tank above the water line in order to let the hot vapor pass as rapidly as possible up into the ventilating pipe. Fig. 9 shows very complete connections for such a tank. The vent pipe is to prevent siphonage of the contents of the tank. Fig. 2 shows similar connections for a vertical type of condensing tank.

It seems to us that the tank in Fig. 4 would always be empty. No discharge from the boiler into the tank is shown and there is no regular provision for draining it. The tank as shown in Fig. 5 cannot be drained and, as there is no vent on the trapped discharge, the contents are in danger of being siphoned. In Fig. 7 the con-

(Continued on Page 114)

Fig. 8—Directly below is shown the manner of connecting the garage catch basin with a loose cover, A lavatory is also shown

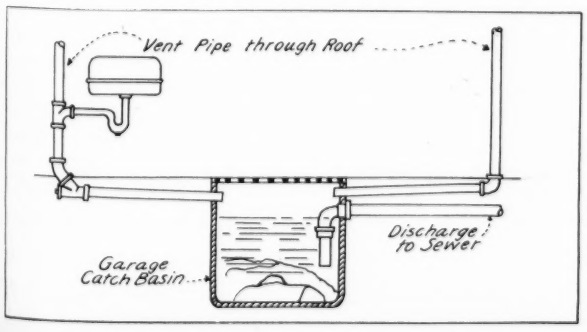
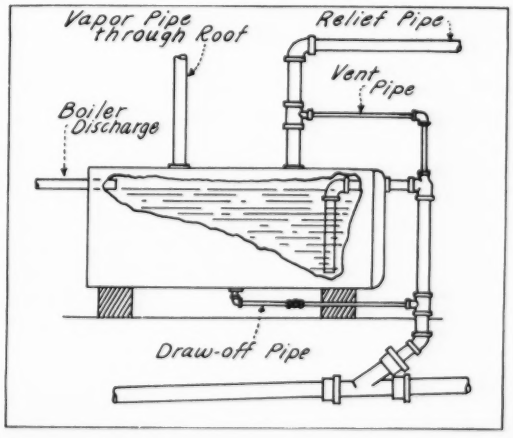


Fig. 9—Shown at the right is a horizontal condensing tank



Data—*Supplementary to tables . . .*

Curves for the flow of steam in pipes are presented in this month's Reference Data

CONTINUING the series dealing with the flow of steam in pipes, which was initiated last month, this month's Heating Reference Data presents the beginning of a series of curves for steam flow. The final set will be published next month. Factors such as determination of delivery and pressure may be interpolated from the use of these curves.

Sheet No. 61

Curves for Steam Flow

The curves for the flow of steam shown on this and subsequent charts were plotted for 125 lb. gauge pressure and drops in lb. per 100 ft. of equivalent run. In order to use these curves it is first necessary to determine the permissible, or desired, drop per 100 ft. of equivalent run and then to read the amount of steam delivered for the different pipe sizes directly off the curves for the pipe size.

This results in obtaining what the pipe will deliver at the drop selected, but is for steam at a pressure of 125 lb. gauge. Factors are given on Sheet No. 65 for multiplying the delivery of 125 lb. gauge to modify this delivery to suit the other pressure. Corresponding factors are given, if it is desired to keep the same pressure drop shown on the curve reading and to modify the delivery to suit the other pressure. Either of these factors may be used as desired, but both should not be used for the same calculation.

Sheet No. 62

Curves for Steam Flow

In the steam flow curves previously shown, the drop has been given up to 1 lb. per 100 ft. of equivalent length of run. This should be sufficient for all ordinary work, but it sometimes happens that the length of run is so short that greater drops are permissible. The curves shown on this chart are an extension of previous curves, except that drops up to 10 lb. per 100 ft. of equivalent length of run are shown and the same correction factors as used on the previous curves also apply to these curves in changing to other pressures or other drops.

Sheet No. 63

Curves for Steam Flow

Care must also be used to employ absolute pressures in making changes to other pressures and applying the correction factors. Absolute pressure is pressure with the atmosphere removed, and as the atmospheric pressure is 14.7 at sea level, it follows that absolute pressure is 14.7 lb. greater than gauge pressure; usually this is taken at 15 lb. Thus the absolute pressure for 125 lb. gage would be

125 lb. gauge plus 15 lb. atmosphere or 140 lb. abs.

and it will be seen in the correction factors to be applied, Sheet No. 65, that the factors by which to multiply for 140 lb. absolute are 1.00 and 1.00, which means that no correction of the curve amounts is necessary at 140 lb. absolute (or 125 lb. gauge). In going onto the curves the process is reversed, as will be seen by looking over the problem solved by the use of these curves and showing their application, Sheet No. 65.

Sheet No. 64

Curves for Steam Flow

The curves shown on this sheet are for 5 in. to 10 in. pipe with pressure drops up to 10 lb., and the same remarks given for the previous curves for 12 in. to 24 in. pipes apply equally to this sheet.

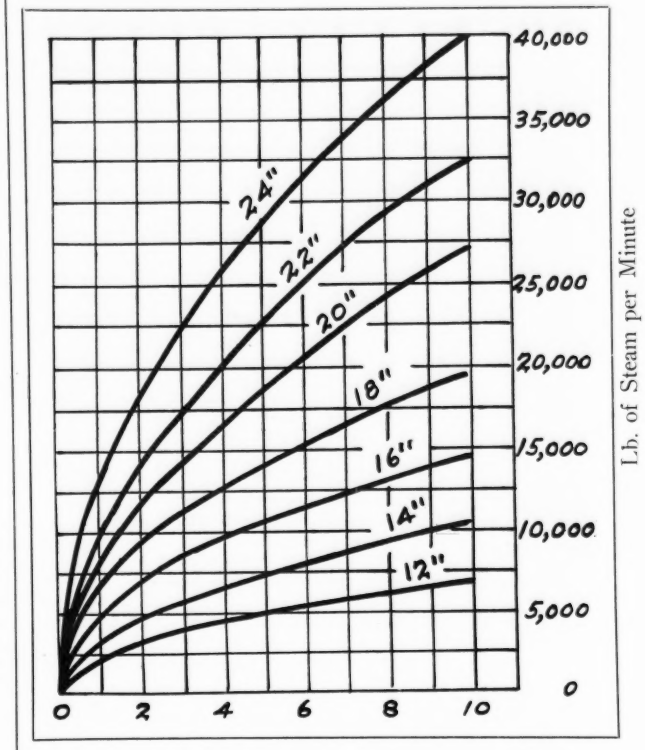
Following the complete presentation of this series of curves for the flow of steam in pipes, an example of their application will be worked out in detail. It will be remembered that the statement was previously made that "the flow of steam in pipes is one of the most important matters in engineering, as few plants of any kind can be operated without this feature being brought into play." These curves which have been plotted for steam at 125 lb. gauge pressure, together with the correction factors for other pressures, which will be shown on Sheet No. 65, are a simple and easy way to determine the delivery of steam. Equivalent length of run, which is such a length of straight pipe that the resistance is equal to some shorter length of pipe with its accompanying fittings, will be defined and a table showing the e.l.r. usually allowed for various types of fittings will be presented, together with an example of its use.

62—

Curves for Steam Flow

125 LB. GAUGE PRESSURE

For factors for other pressures see No. 65 and for equivalent length of run see No. 67.



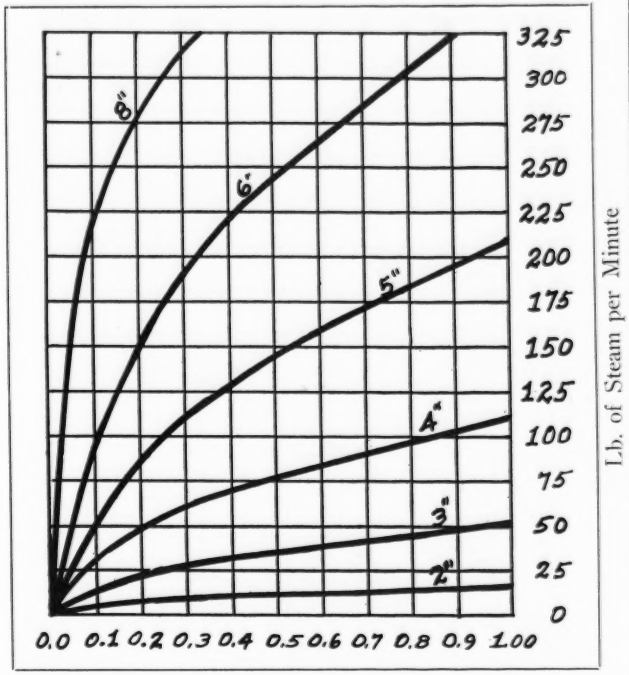
Drop in Lb. per 100 Ft. Equivalent Run

Note: for 0 lb. to 1 lb. drop see No. 61.

63—

Curves for Steam Flow

125 LB. GAUGE PRESSURE



Drop in Lb. per 100 Ft. Equivalent Run

Note: see explanation for use on No. 65.

Note: for flows less than 50 lb. per minute see No. 65.

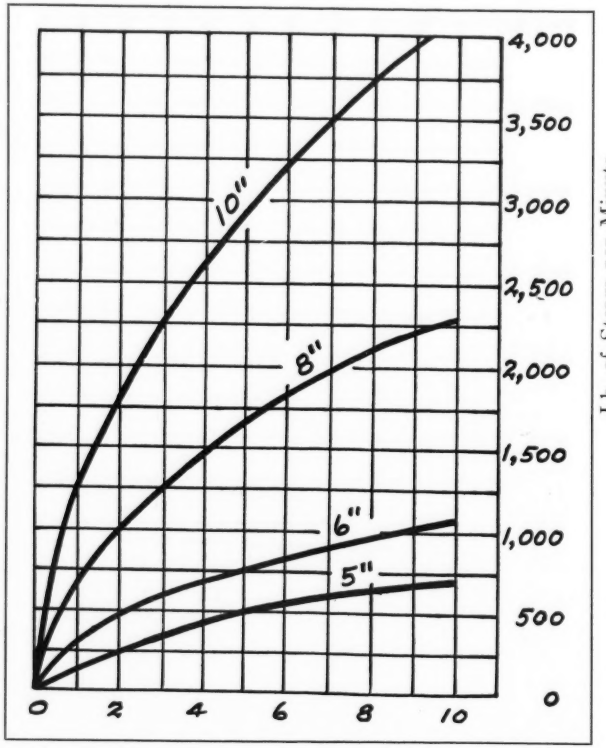
Published by Domestic Engineering.

64—

Curves for Steam Flow

125 LB. GAUGE PRESSURE

For factors for other pressures see No. 65 and for equivalent length of run see No. 67.



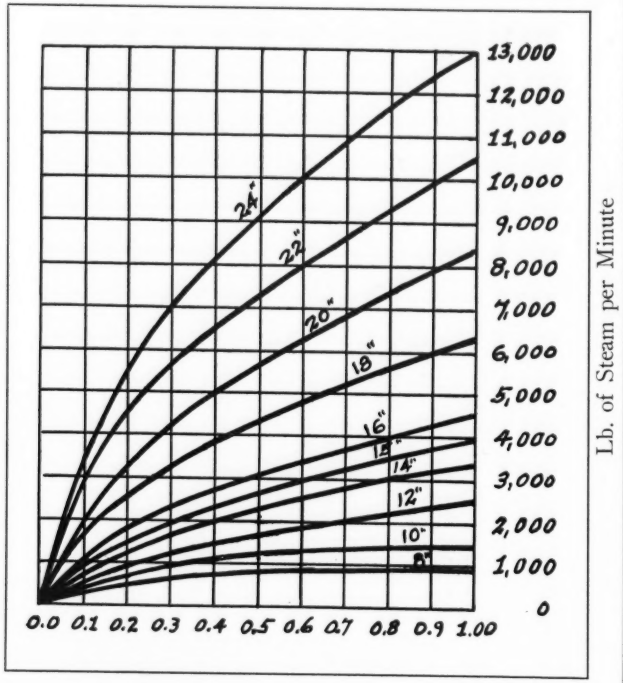
Drop in Lb. per 100 Ft. Equivalent Run

Note: for 0 lb. to 1 lb. drop see No. 61 and No. 63.

61—

Curves for Steam Flow

125 LB. GAUGE PRESSURE



Drop in Lb. per 100 Ft. Equivalent Run

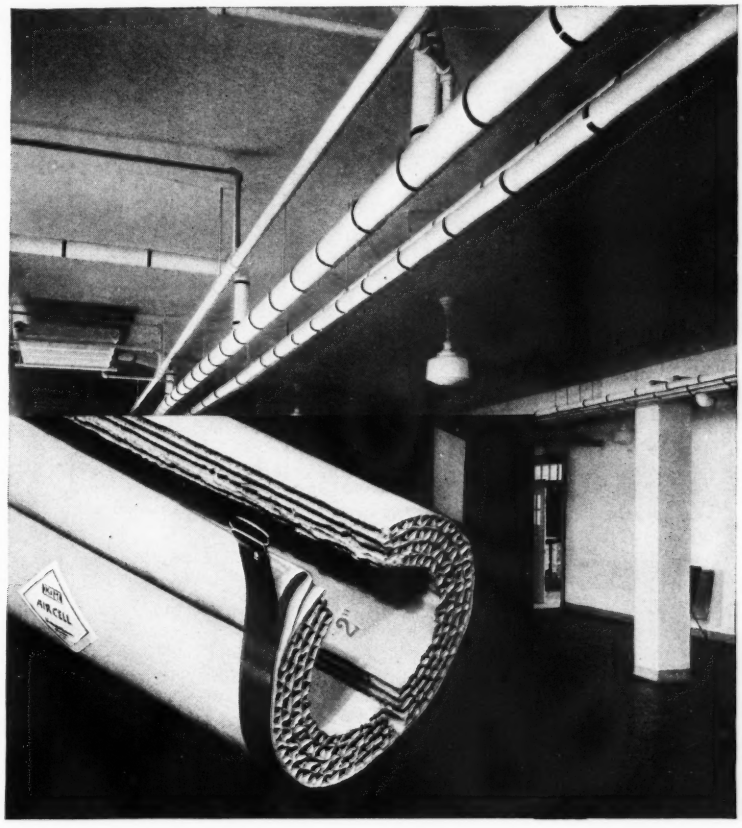
Note: see explanation for use on No. 65.

Note: for flows less than 350 lb. per minute see No. 63.

Published by DOMESTIC ENGINEERING.

These tables combine information found in text books and in practical work. They will be added to each month until the series is completed

Inexpensive, efficient, good looking



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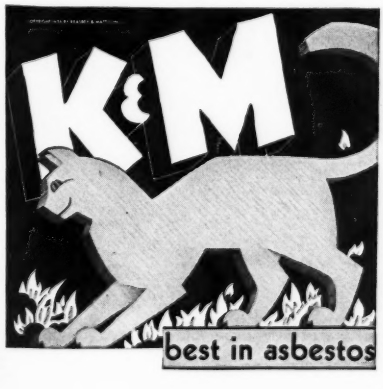
Nothing looks neater than an installation made with K&M Air Cell. That pleases customers, and so does the low cost. But most of all, what they like is the effective and lasting insulating ability of this material, for it keeps on saving money down through the years. Comes in sheets and blocks, as well as in sectional form for pipe insulation.

Like all K&M products, it has behind it more than 60 years' experience in manufacturing asbestos and magnesia products. The most rigid quality-control assures you durability, uniformity, and exceptional physical properties. The K&M line is complete, priced right, and sold by the right people . . . sold only through established channels of distribution.



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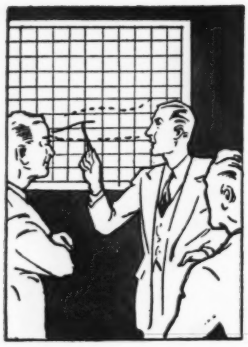


Business

Uptrend Seems Definite . . . Expect Shipment Gains . . .

Industry Still Gains

• *Despite recession of business in general, plumbing and heating register 13.21 per cent gain over September of last year*

In spite of the drop in general business, the plumbing and heating industry registered a gain of 13.21 per cent in September over the same month of last year. Since August likewise showed a gain over last year, there are indications that the trend of plumbing and heating business has definitely turned upward.

August factory shipments were below last year in many cases. However, wholesaler reports indicate that September or October shipment figures will show a gain over last year. Department of Commerce reports for the first eight months show mechanical stokers 52.45 per cent ahead of last year, domestic water systems 28.82 per cent ahead and plumbing brass 26.29 per cent. These are the items showing the largest gains. Range boilers showing a decrease of 3.57 per cent is the only item, on which figures are available, below the first eight month period of last year.

A number of wholesalers reported price increases in boilers and radiation ranging from 5 to 10 per cent. This is probably the same increase previously reported in other sections. Trade prices of copper and brass goods were off in most sections.

Key Wholesalers

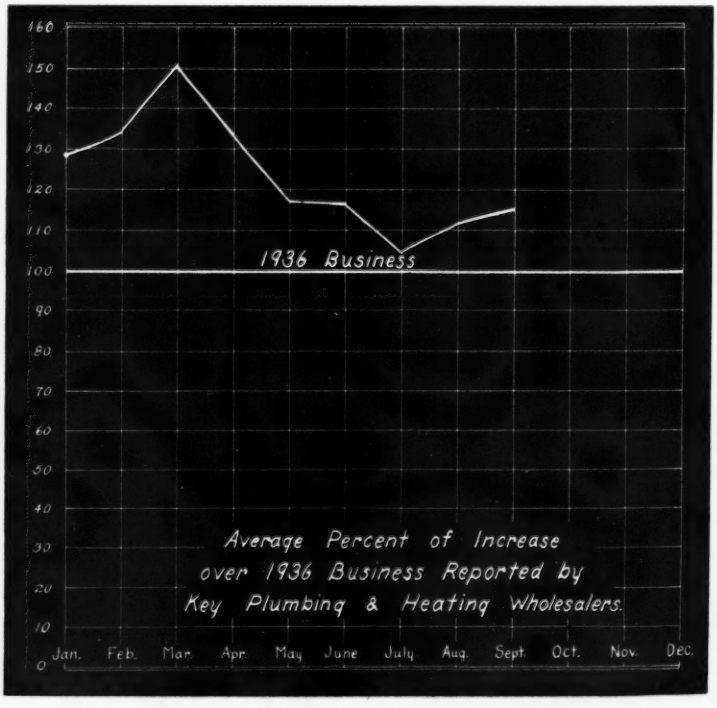
One hundred and twenty-nine key wholesalers reported an average gain of 13.21 per cent for the month of September over the same month of last year. Their average gain for the first nine months of this year over the same period of last year was 20.43 per cent. Forty-two of these wholesalers expect business next month to be better than October of last year, 53 expect it to continue about the same, 28 expect a decline and six did not comment.

New England States: Ten firms in this section reported an average increase of 20.17 per cent for the month of September over the same month of last year. For the first nine months, these firms reported an average gain of 22.21 per cent over the same period of last year. Four expect business to be better in October than it was in October of last year, 4 expect it to continue about the same, one expects a decline and the other one did not comment.

Middle Atlantic States: Forty-four Middle Atlantic wholesalers reported an average increase of 1.62 per cent in September over September of 1936 and a gain of 14.81 per cent for the first nine months of 1937 over the like period of last year. Eleven expect business to be better in October, 17 expect it to continue about the same, 14 expect a decline and two did not comment.

New Jersey wholesalers report—"A year ago we were selling a large volume of heating materials under the F.H.A. plan. As this plan has been discontinued, our business has declined considerably and will probably decline further in October." "We have less public work. Prices of heating materials advanced about 10 per cent while other prices held about the same." "Jobs already booked indicate that October will be better than October of last year." "We had an exceptionally good October in 1936 but prospects this month do not look as good."

"Boiler and radiator price advances are not taking hold well and copper and brass prices are falling off while fittings are weak. At present gas boilers and



This chart indicates an increase of 13.21 per cent over September, 1936

HELPING GOOD MECHANICS DO BETTER WORK

A DRILL COMBINATION THAT'S LIKE AN EXTRA HELPER!

IN the shop—or on installation and service work on plumbing, heating and air conditioning systems—the Black & Decker ½-Inch Junior Drill will save your helpers' time—enable them to do neater work—cut your costs to the bone. The ½-Inch Junior drills holes up to ½-inch in metal; drives 1-inch wood augers in hard wood; and powers Hole Saws for cutting clean, round holes in wood, sheet metal, cast iron, steel or composition up to 3½-inches in diameter. Mounted in the drill stand (as illustrated) the ½-Inch Junior serves as a powerful drill press for fast, accurate work. Ask your Black & Decker Jobber for a demonstration, or write for details. The Black & Decker Mfg. Co., 721 Pennsylvania Avenue, Towson, Maryland.

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World's Largest Manufacturer of

BLACK & DECKER

PORTABLE ELECTRIC TOOLS

KEY WHOLESALERS

	Pct. of increase for Sept. as compared with Sept. of last year	Pct. of increase for 1st 9 months of this year as compared with the same period of last year	Prospects for next month compared with the same month of the previous year appear				
			Better	Same	Worse	No Comment	Total Reports
New England	17.57	22.45	3	3	1	1	8
Middle Atlantic	3.36	14.87	11	11	9	2	33
South Atlantic	15.60	27.06	5	4	2	0	11
East North Central	32.19	30.70	8	12	2	0	22
East South Central	12.38	11.26	0	1	2	1	4
West North Central	13.60	16.22	2	7	1	0	10
West South Central	1.38	23.28	1	1	0	0	2
Mountain	3.50	34.00	1	1	0	0	2
Pacific	13.70	15.52	0	2	1	0	3
TOTAL			31	42	18	4	95

SHIPMENTS OF PLUMBING AND HEATING ITEMS

	Aug., 1937	Aug., 1936	Total 1st 8 Mos., 1937	Per cent of change 1st 8 mos., 1937 compared with same period of '36
Steel Boilers				
Number of units	1,356	1,140	7,628	+15.23
Range Boilers				
Number of units	34,865	103,799	561,463	— 3.57
Domestic water systems				
Number of units	15,526	14,990	136,211	+28.82
Domestic water softening apparatus				
Number of units	987	1,016	7,429	+14.46
Plumbing Brass				
Thousands of pieces	1,730	1,629	15,283	+26.29
Oil Burners				
Number of units	22,413	21,164	116,159	+16.32
Mechanical stokers (for residential, apartment and small commercial use)	13,007	9,123	52,532	+52.45
Cast Iron Boilers				
Thousands of pounds	.....	.....	.....	.....
Cast Iron Radiation				
Thousands of feet of heating surface	.....	.....	.....	.....

gas conversion units are making real headway after several years lull."

New York wholesalers state—"Our sales for the month of September increased about 50 per cent over the same month of last year and we surely would have had a much larger increase in September but for the alteration plumbers' strike in New York, which has affected all jobbers. However, it is settled now and October business should be very good." "A lack of construction in this territory." "An advance of 5 per cent in boiler and radiator prices with a gradual letting off in the price of brass goods."

Pennsylvania wholesalers report—"Orders on hand indicate that October business will be better than October of last year." "Severe price competition." "We expect a higher dollar volume in October than last year."

South Atlantic States: In the South Atlantic section, 14 wholesalers report an average gain for September of 17.42 per cent over September of last year. For the first nine months of 1937 over the same period of 1936 they report a gain of 26.86 per cent. Six expect business to be better next month, five expect it to continue about the same and three expect a decline. One of these wholesalers who expects a decline reports that business in October '36 was exceptionally good.

One South Atlantic wholesaler reports that there has been no marked slowing-up in their dollar volume because of a 5 per cent increase in boiler and radiation prices. A wholesaler in North Carolina remarked that six new plumbing and heating contractors opened up a business there. Another South Atlantic wholesaler reports a lack of new construction.

East North Central States: Thirty East North Central wholesalers report an average gain in September of 25.42 per cent over the same month of last year and in the first nine months a gain of 24.63 per cent over the like period of last year. Twelve of these firms expect business in October to be better than in October of last year, 15 expect it to continue about the same, while three expect a decline.

In this section the crops are reported to be better than last year. A weakness in the price of brass goods was reported in this section also. One firm in this section reports a better employment situation than that of a year ago. Another firm states that fall trade this year is unusually good.

East South Central States: Four wholesalers in the East South Central section report an average increase of 12.38 per cent for the month of September over September of last year and a gain of 11.26 per cent for the first nine months over the same period of last year. One expects business to continue about the same in October, two expect a decline while the other one did not comment.

A wholesaler in this section reports that for them the last four months of 1936 found recovery at high tide. They would be satisfied to equal the volume of these months this year but believe that business will fall off slightly.

West North Central States: For the month of September, 14 wholesalers in this section report an average gain of 14.68 per cent over September of last year. These firms report an average gain of 17.69 per cent for the first 9 months of '37 over the same period of last year. Three expect business to be better next month, 7 expect it to continue about the same, two expect a decline and two did not comment.

A wholesaler in this section reports that September was the largest month in sales volume of any month since October, 1927, with the greater part out-of-stock sales with no large or unusual sales to inflate the volume. Sales were actual billings.

One wholesaler in this section reports that October, 1936, was a big month for them.

West South Central States: In the West South Central States the gains reported for September by three wholesalers averaged 14.92 per cent ahead of September of last year, while for the first nine months their average gain was 16.02 per cent over the same period of last year.

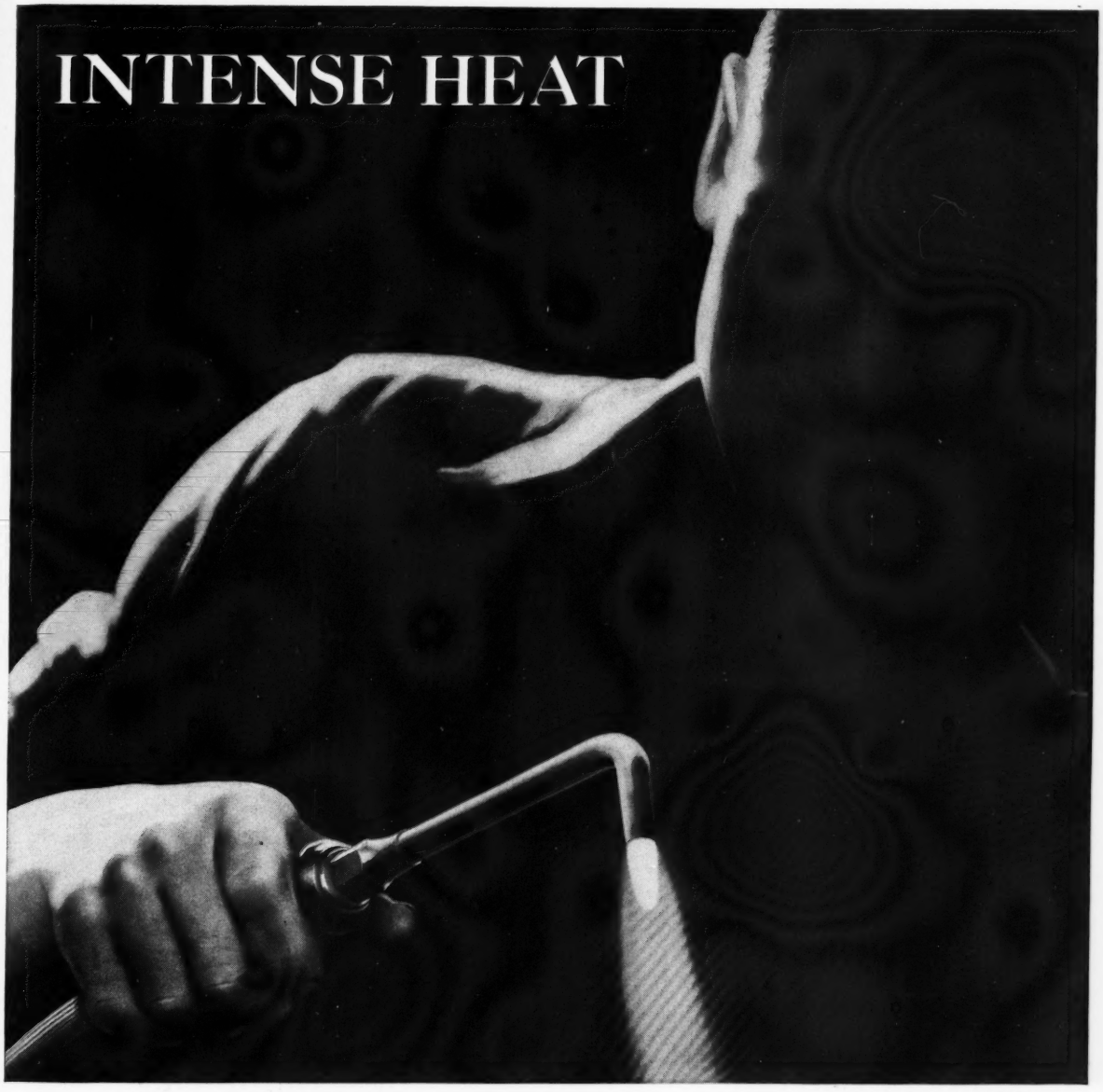
Two of these firms expect business to be better in October than it was in October of last year, while the other expects it to continue about the same.

Mountain States: Four wholesalers in the Mountain States report an average gain of 11.75 per cent for September over September of last year and a gain of 33.12 per cent for the first nine months over the same period of last year. Three expect next month's business to be better than that of October last year, while the other expects it to continue about the same.

Pacific States: Six Pacific State wholesalers report gains for September averaging 14.28 per cent ahead of last year, and an average gain of 29.28 per cent for the first nine months of '37 over the same period of 1936. One expects an increase in October, two expect business to continue the same while three expect a decline.

Air Conditioning

In September, 43 utilities reported 152 summer and year' round air condition-



Prest-O-Lite A-6107 Torch (Illustrated), price $2.50

PREST-O-LITE TORCHES...

Provide a high-temperature flame instantly

Prest-O-Lite* Torches meet the heat requirements for any soldering, heating or light brazing operation. These modern torches, using economical Prest-O-Lite Gas, can produce instantly a flame temperature as high as 2,800 degrees Fahrenheit. Yet a flame of reduced intensity can be produced for solder of low melting point or can be exactly controlled to avoid damage to the thinnest metal.

Ask your jobber to show you how Prest-O-Lite Torches and Prest-O-Lite Gas will help you complete jobs rapidly and profitably.

*Trade-Mark

THE LINDE AIR PRODUCTS COMPANY
Unit of Union Carbide and Carbon Corporation
UCC
New York and Principal Cities
In Canada: Dominion Oxygen Company, Limited, Toronto

PRODUCTS OF A UNIT OF UCC UNION CARBIDE AND CARBON CORPORATION

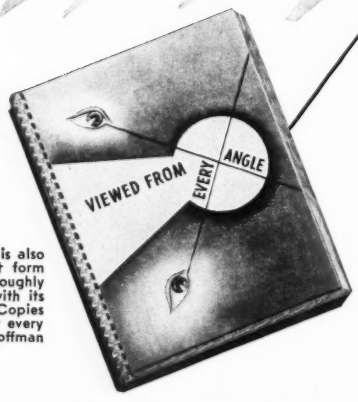
SO STARTLING YOU CAN'T AFFORD TO MISS IT!

FACTS THAT SELL RADIATOR HEAT AGAINST ALL COMPETITION NOW REVEALED IN NEW TALKING FILM BY HOFFMAN!

Facts you've needed for a long time! Facts whose existence you may have suspected but never seen definitely confirmed! A nation-wide survey of heating methods, costs and results sponsored by Hoffman and now presented in a talking film brings to light a mass of evidence which firmly establishes Radiator Heat as the soundest investment—*from every angle!*

You'll find no vague generalities, but—*for the first time*—hard cold figures to back up every statement. Figures which can't be broken down when you lay them before a home builder or modernizer.

See this film—ask your wholesaler to arrange for a showing. You'll go away with an entirely new conception of Radiator Heat's great selling possibilities.



The story of the film is also published in booklet form so that you can thoroughly familiarize yourself with its vital selling story. Copies will be distributed at every showing of the Hoffman film.

HOFFMAN
SPECIALTY CO. INC.
WATERBURY, CONN.

The Quality Line of HSC *Heating Specialties*

Hoffman Specialty Co., Inc.
Dept. RX-11, Waterbury, Conn.

When and where can I see the new Hoffman film, "Viewed from Every Angle?"

Name.....

Address.....

City..... *State*.....

Sold everywhere by leading wholesalers of Heating and Plumbing equipment

ing installations as against 158 in September last year—a decrease of 3.80 per cent. Horsepower in September totaled 2,596.94 against 3,503.05 in the same month last year—a decrease of 25.87 per cent. These 43 utilities reported 3,474 installations requiring 76,915.18 horsepower for the first nine months of 1937. In the same period last year installations totaled 2,435 and horsepower totaled 48,860.78. The increase in number was 42.67 per cent, while horsepower increased 57.42 per cent.

Oil Burners

Oil burner factory shipments for August show a small gain (5.9 per cent) over last year.

In 44 cities, 5,051 oil burner permits were issued during September. This represents an increase of 3.80 per cent over the 4,866 permits issued in September a year ago. Nine month reports from these 44 cities, however, showed an increase of 9.64 per cent. The nine month totals were 20,071 this year and 18,306 last year.

Stokers

Factory shipments of domestic and small commercial stokers totaled 13,007 in August, 1937, which represents an increase of 42.57 per cent over last year. It is significant to note that domestic stokers continue to increase in importance within the stoker field.

In September, 13 cities reported 597 permits issued as against 365 in September of last year—an increase of 63.56 per cent. During the first 9 months of 1937 there were 2,342 permits issued in these cities which represents an increase of 39.74 per cent over the 1,676 issued in the like period of 1936. These figures are not complete for these cities but merely indicate the trend.

Gas Heating

The American Gas Association reports that there were 151,300 gas heating customers on the lines of manufactured gas utilities at the end of July. At the end of July last year there were 124,900—a gain of 21.1 per cent. Similar figures for natural gas territories are not available.

Building Construction

All types of building construction activity advanced in August, according to the Department of Labor. Reports made to the Bureau of Labor Statistics from 1,456 identical cities with a population of 2,500 or more indicated that the value of permits issued for new nonresidential construction during the month of August was 12.2 per cent above the July level. Increases were also shown in the estimated cost of new residential construction and of additions, alterations and repairs.

The total value of all classes of buildings for which permits were issued in August was 5.6 per cent higher than in the month preceding. Compared with the same month of last year, the total value of buildings for which permits were issued during August showed a decrease of 3.6 per cent. This decline was due entirely to a decrease of 23.1 per cent in the value of new residential construction.

Budget Survey

The 1937 Survey of Industrial Advertising Budgets issued annually by the National Industrial Advertisers Association has just been distributed to members. It is a 12-page leaflet full of tables showing breakdowns of budgets by percentages used for various media, advertising expense in per cent of sales, sales expense in per cent of sales, and sales volume in per cent of plant capacity. The percentages showing expenditures in various media is further broken down into eight classifications as to type of product and six classifications as to sales volume.

The current survey is made up in a form to permit easy comparison. The information on sales expense in per cent of sales is a new feature, being included for the first time this year. This percentage ranges from 2.5 to 24.8 for the various groups and averages 13.7.

The advertising expense for 1937 averaged 2.20 per cent for all companies reporting and business volume 93.1 per cent of plant capacity.

Copies of the survey may be obtained from the National Industrial Advertisers Association, Inc., 100 E. Ohio St., Chicago, Ill.

P. W. A. Housing

Tenants began moving into Lakeview Terrace, third PWA slum clearance and low-rent housing project to open in Cleveland, Ohio, on October 11.

Apartments and row houses rent on an average of $18.80 to $24.55 a month. The 620 dwellings of the big $3,800,000 project replace the slums of Cleveland's notorious "Whiskey Island" section.

Metal Prices

(Prices as of Oct. 13, 1937)

New Metal Market—13.

Electrolytic Copper—Delivered Middle West, 13⅛.

Lead—St. Louis, $5.85 cwt.; New York, $6.00 cwt.

Zinc—St. Louis, $6.25 cwt.

Tin—New York, $54.12½ cwt.

Brass Ingot—$13.00 LCL, delivered $13.25.

Yellow Ingot—$10.50 LCL, delivered $10.75.

Scrap Metal (Dealers' Buying Prices)

Composition and Steam Brass—$7.50 cwt.

Strictly Heavy Yellow Brass Scrap Cast—$5.25 cwt.

Mixed, strictly cocks and faucets (including ball cocks, etc.)—$5.75 cwt.

Light brass, tubes, pipes, old sheets, etc.—$4.75 cwt.

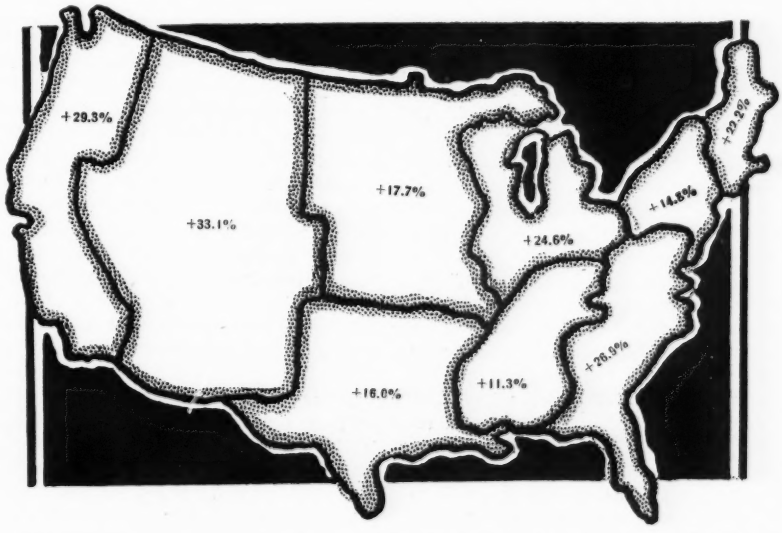
Old scrap lead pipe, etc.—$5.10 cwt.

Copper sheating, free of nails—$7.50 cwt.

Copper boilers, tanks and other light materials—$7.25 cwt.

Soldered joints—$7.50 cwt. f. o. b. Chicago.

Block Tin—$47.50 cwt. f o. b. Chicago.



This map shows the average percentage of change in the business of key wholesalers in each section of the country for the first nine months of 1937 compared with the first nine months of 1936

Building Conference

A building industry conference to analyze the causes of the slowing down of residential building and to suggest means for stimulating activity in this field has been called by the Chamber of Commerce of the United States, George H. Davis, president, has announced. The conference will be held Nov. 17 and 18 at Washington, D. C.

Plans for the meeting are being developed by the chamber in cooperation with representatives of building material and equipment manufacturers, real estate interests, building supply dealers, contractors, operative builders, architects and financing institutions.

"The conference will provide a timely opportunity for representatives of local chambers of commerce and the public generally to become familiar with the programs of the important units in the building industry to stimulate privately financed low and medium priced residential building," said Mr. Davis. "It is intended to develop a constructive and positive program on the part of industry to overcome the slackening in the last few months of the rate of increase in residential building."

Statistics

The estimated number of urban dwellings built each year since 1930 is:

1930	303,000
1931	219,000
1932	94,000
1933	64,000
1934	59,000
1935	138,000
1936	275,000
Average 1930-1936	165,000

For the years 1920-1929 the average number of family residential units built in urban and rural non-farm areas was 677,000. In 1928 private residential building accounted for some 40 per cent of a total eleven billion dollar volume of private and public construction. In 1936 it accounted for only 18 per cent of a total six and three-quarters billion dollar volume.

"At the beginning of 1937 it was the general opinion that there would be an increase this year over the 1936 volume of between 50 and 60 per cent," Mr. Davis continued. "In the past few months, however, the rate of increase has materially slackened so that it now appears that the increase will scarcely be more than half of that predicted.

"It is evident that the continued recovery of residential construction is important. The normal balance between private and public construction needs to be restored. An increase in private residential construction will help restore this balance and also will make a substantial contribution to general business recovery. This increase must depend upon private enterprise.

"The government's slum clearance program at most can provide only a small fraction of the total dwellings required, namely, some 35,000 to 40,000 units annually for the next three years out of a total annual requirement of several hundred thousand. Past performance makes even this expectancy problematical. After five years of effort to date the government has built or has under construction only 27,161 units.

"Prior to the decision to hold the building industry conference on residential building a canvass was made of representatives of lumber, cement, brick and steel manufacturers, lumber and building supply dealers, contractors, operative builders and architects, to determine in what ways the United States Chamber of Commerce could be helpful. There was unanimity of opinion that a conference on private residential building this fall under the national chamber's auspices would be helpful, provided it developed practical ideas and suggestions which local chambers of commerce could put to work in their respective communities."

AUGUST BUILDING PERMITS
54 Most Active Cities

State and City	New Residential Buildings	Families Provided For	New Non-Residential Buildings	Total (Including Repairs)
NEW ENGLAND STATES				
Hartford, Conn.	50,350	9	578,525	981,513
Boston, Mass.	133,300	25	107,355	1,102,689
Cambridge, Mass.	3,500	1	355,800	459,979
Worcester, Mass.	141,800	22	255,825	453,360
MIDDLE ATLANTIC STATES				
Summit, N. J.	26,700	3	445,250	486,820
Buffalo, N. Y.	105,000	25	157,015	640,904
New York City:				
The Bronx	393,100	116	144,450	812,109
Brooklyn	1,373,900	438	1,570,789	4,300,451
Manhattan	2,715,000	284	1,263,850	5,976,395
Queens	2,059,150	546	1,513,504	4,450,526
Richmond	111,100	30	33,225	223,933
Scarsdale, N. Y.	76,800	7	731,500	809,100
Harrisburg, Pa.	35,200	4	685,700	759,575
Lower Merion T, Pa.	456,950	31	1,450	505,283
Philadelphia, Pa.	680,440	144	380,920	2,263,247
Pittsburgh, Pa.	157,400	35	32,720	550,146
EAST NORTH CENTRAL STATES				
Chicago, Ill.	576,400	95	2,662,325	3,931,138
Hammond, Ind.	74,000	21	614,850	741,600
Indianapolis, Ind.	281,000	67	411,535	806,108
Detroit, Mich.	2,100,670	382	2,926,380	5,747,161
Highland Park, Mich.	0	0	1,011,175	1,107,750
Akron, Ohio	136,430	32	183,095	462,092
Cincinnati, Ohio	629,920	127	594,080	1,428,825
Cleveland, Ohio.	236,600	44	366,250	1,268,462
Columbus, Ohio	437,800	47	141,150	671,449
Dayton, Ohio	205,650	53	133,609	484,407
Milwaukee, Wis.	308,899	57	358,044	975,892
WEST NORTH CENTRAL				
Minneapolis, Minn.	335,350	82	77,475	673,440
St. Paul, Minn.	228,000	43	100,436	460,291
St. Louis, Mo.	297,000	74	82,498	665,613
SOUTH ATLANTIC STATES				
Washington, D. C.	2,002,075	739	1,692,025	4,264,059
Fernandina, Fla.	5,500	2	6,303,000	6,308,900
Jacksonville, Fla.	187,050	49	207,439	611,334
Miami, Fla.	607,045	197	1,722,797	2,533,318
Miami Beach, Fla.	939,700	68	97,800	1,166,472
Baltimore, Md.	488,000	124	218,200	1,076,900
Durham, N. Car.	517,350	127	7,000	672,251
Greenville, S. Car.	20,600	5	422,860	455,590
Norfolk, Va.	115,700	33	96,370	599,753
Charleston, W. Va.	377,510	94	30,995	460,190
EAST SOUTH CENTRAL STATES				
Louisville, Ky.	228,100	67	155,850	607,302
Memphis, Tenn.	155,450	43	197,730	462,405
Nashville, Tenn.	87,732	39	674,732	897,363
WEST SOUTH CENTRAL STATES				
New Orleans, La.	145,875	37	113,225	530,677
Fort Worth, Texas	191,160	73	516,118	737,531
Houston, Texas	756,435	241	275,650	1,127,440
San Antonio, Texas	147,450	46	275,292	660,549
MOUNTAIN STATES				
Denver, Colo.	288,700	77	80,531	482,523
PACIFIC STATES				
Glendale, Calif.	432,080	90	43,845	500,469
Long Beach, Calif.	320,950	106	496,635	1,023,855
Los Angeles, Calif.	2,872,374	734	1,103,278	5,190,693
Oakland, Calif.	316,265	75	129,631	587,108
Sacramento, Calif.	166,442	43	236,168	450,036
San Diego, Calif.	508,384	148	120,020	1,111,594
San Francisco, Calif.	395,600	103	1,264,634	2,078,223
Santa Monica, Calif.	191,750	60	462,575	674,831
Portland, Ore.	286,940	65	82,305	581,125
Seattle, Wash.	163,075	48	94,280	710,005

Cleaner Sales

American women are purchasing electrical vacuum cleaners in record-breaking numbers, according to industry statistics made public today by C. G. Frantz, executive secretary of the Vacuum Cleaner Manufacturers' Assn.

"Sales by the association membership in August totaled 116,242, an increase of 9.4 per cent over the same month in 1936 and also an advance over the July, 1937, figure, which was 111,233," Mr. Frantz said.

Push this Boiler for Modernization Profits Now

New "LUCKY 7" IDEAL BOILER

The boiler that's bringing business to Heating Men . . . newest member of the complete line of

AMERICAN RADIATORS & IDEAL BOILERS

THE "Lucky 7" was designed to give you a boiler that would sell fast—sell on sight and at a profit. Because of its low price, you can often make a new sale instead of patching up an old job. Because of the quality and sound engineering in it, you can recommend the "Lucky 7" without hesitation to the man who is fed up on heating troubles.

The new design of its flue galleries, with the extra large heating surface and low draft tension give more heat from less fuel. It is quick on pick-up — there's a relatively small amount of water in the water-ways and the large openings between sections permit rapid circulation. All section and door contacts are between ground iron-to-iron surfaces. It is made of time-tested corrosion resisting cast iron. And it includes provision for domestic hot water supply.

One feature that will help your sale is the easy conversion of the "Lucky 7" to any fuel — coal (hand or stoker-fired), oil or gas — at any time, without loss of heating efficiency.

It will pay you in profits to push the "Lucky 7" now.

AMERICAN RADIATOR COMPANY
DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION
40 West 40th Street, New York, N. Y.

LISTEN IN! American Radiator Fireside Recital . . . every Sunday 7:30 P. M. E. S. T. WEAF-NBC Network.

AMERICAN RADIATOR

Offers equipment for every type of comfort system . . . from simple, low cost heating, to the most expensive year-'round air conditioning installations:

1. **RADIATOR HEATING ALONE**—the basis of good air conditioning — to which Arco Air Conditioning may be added any time.
2. **RADIATOR HEATING WITH HUMIDITY**—featuring the Arco Humidifier 8000, easily attached to boiler.
3. **RADIATOR HEATING WITH WINTER AIR CONDITIONING**—featuring the Arco Air Conditioner 101 and 201 for ventilation, humidification, air cleaning and air circulation.
4. **RADIATOR HEATING WITH WINTER AIR CONDITIONING**—and air heating for certain rooms — with the Arco Air Conditioner 301-B or 1101-B.
5. **INDIRECT AIR HEATING WITH RADIATOR HEAT** for bathroom and kitchen, and integral domestic hot water supply.
6. **SUMMER COOLING** for any Arco Air Conditioned home with the new Arco Cooling Unit easily added to the Conditioner.

FEATURED IN THE

New AMERICAN RADIATOR CONDITIONING SYSTEMS

BRING IN FRESH AIR • ADD HUMIDITY • CLEAN THE AIR • CIRCULATE THE AIR • GIVE SUN-LIKE RADIANT HEAT • WARM EVERY ROOM EVENLY • SUPPLY YEAR-'ROUND DOMESTIC HOT WATER

THIS is the maxim of the department store merchants—numbered among the smartest tradesmen in the world.

They know the value of "selling through the eye." Windows full of the newest merchandise tempt you. Showcase, counter and aisle displays make wanting—and buying—easy.

So, if you would convert the widespread interest in Formed Metal Plumbing Ware into sure sales and handsome profits, give your prospects a chance to see and desire these modern fixtures.

Turn your window—like the one above—into an attractive display. Say "come in" with a friendly sign. Viewed close, the marvelous color of these fixtures becomes an eloquent salesman. The gleaming smoothness of the porcelain enamel tells curious fingers that here is *real* craftsmanship.

And when visitors see that each piece of this ware carries the well-known ARMCO trade-mark, the sale is half made.

If you do not have complete information on Formed Metal Plumbing Ware for kitchens, bathrooms and laundries, write us today—mentioning the name of your preferred supply house. The American Rolling Mill Company; Executive Offices, Middletown, Ohio.

ARMCO Ingot Iron

A NAME KNOWN TO MILLIONS

Construction

Construction work started during September in the 37 Eastern States fell almost 10 per cent below the level for September, 1936, and was off almost 28 per cent from the August, 1937, total, according to F. W. Dodge Corporation. The September figure for all classes of construction amounted to $207,071,800 which compares with $234,271,500 for September, 1936, and $285,104,100 for August of this year.

Of the current September total $65,589,800 went into residential building; in September last year this class recorded a volume of $80,670,800, while in August of this year residential building amounted to $73,448,300. Excepting only the Upstate New York, Middle Atlantic, the Southeastern, and the New Orleans territories, declines from a year ago in residential building were general.

Non-residential building operations in September amounted to $75,660,000 which compares with $69,098,700 for September, 1936, and $117,209,800 for August, 1937. Public works and utilities construction started in the 37 Eastern States in September amounted to $65,822,000 as contrasted with $84,502,000 for September of last year and $94,446,000 for August of this year.

For the first nine months of 1937 the total volume of construction work undertaken in the 37 Eastern States amounted to $2,307,014,300; this was an increase of 13 per cent over the total of $2,041,628,200 shown for the corresponding nine months of 1936.

The residential building total for the initial nine months of the current year amounted to $736,390,600 for a gain of 25 per cent over the total of $588,031,600 reported for the corresponding nine months of last year. Non-residential building volume recorded thus far in 1937 amounted to $894,894,900 against $735,337,100 for the like 1936 period. Public works and utilities construction thus far in 1937 totaled $675,728,800 as compared with $718,259,500 for the nine-month period of 1936.

Living Costs

The cost of living of wage earners in the United States in September, 1937, was 0.4 per cent higher than in August, according to the monthly survey of the National Industrial Conference Board. Increases were noted in the cost of each of the major groups that compose the budget. Living costs in September of this year were 4.1 per cent higher than a year ago, 24.7 per cent higher than in the spring of 1933, but 11.6 per cent lower than in September, 1929.

Food prices advanced 0.3 per cent from August to September, which made them 1.7 per cent higher than in September, 1936, 43.4 per cent higher than in the spring of 1933, although 20.6 per cent lower than in September, 1929.

Rents again moved sharply upward, rising 0.9 per cent from August to September. Since a year ago, there has been an advance of 10.3 per cent in rents, and since the beginning of 1934, the low point, an increase of 41.3 per cent. In September of this year rents averaged only 4.0 per cent below the level of September, 1929.

Clothing prices increased 0.9 per cent from August to September; a slightly larger increase was noted in the price of women's clothing than in men's clothing. Since a year ago clothing prices have risen 6.7 per cent, and since their low point of 1933, 29.3 per cent. They were, however, still 20.4 per cent below those of September, 1929.

Coal prices advanced seasonally, 1.2 per cent, but in September of this year they were 0.2 per cent lower than a year ago, and 7.8 per cent lower than in September, 1929.

The cost of sundries in September was slightly higher, namely, 0.1 per cent, than in August, 2.8 per cent higher than in September, 1936, 7.6 per cent above the low point of 1933, and only 2.0 per cent below the level of September, 1929.

The purchasing value of the dollar was 111.9 cents in September, 1937, as compared with 112.4 cents in August, 116.4 cents in September, 1936, and 100 cents in 1923.

W. P. A. Purchases

Plumbing equipment and supplies valued at $5,625,430 were among the more than one-half billion dollars worth of materials, supplies and equipment purchased for projects of the Works Progress Administration in the first 26 months of its operation up to September 1, 1937, according to records of the WPA Division of Research, Statistics and Records.

Of this amount, $2,305,519 was in Federal funds from various emergency relief appropriations, and $3,319,911 was in funds of the project sponsors.

All of the purchases for Federal account were by the Procurement Division of the United States Treasury Department after open competitive bidding. The bulk of the purchases was in comparatively small quantities for individual projects of the WPA, and the bid awards usually went to dealers in the immediate vicinity of the projects.

Construction or repair accounted for 80 per cent of all the WPA activities so it is not difficult to understand the large aggregate amount of the purchases of plumbing equipment and supplies. Public buildings throughout the country were the beneficiaries of a program designed to give employment either in the installation of modern plumbing facilities in new structures or in the renovation of outmoded equipment in existing ones.

In some cases, schools had been closed during severe weather because of the inability of the responsible authorities to finance installation of new plumbing in the place of worn out systems, and in some cases, sanitary facilities bordered on the disgraceful before the WPA afforded the opportunity to rectify conditions.

These supplies and equipment were in addition to heating and ventilating equipment and supplies valued at $4,797,069 purchased for the WPA projects and classified in a separate category by the Procurement Division.

Farmers' Income

The increase in the actual and prospective purchasing power of the farm population promises to be one of the most important influences tending to sustain the level of general business activity over the next several months, states the Guaranty Trust Company of New York in The Guaranty Survey.

"This increase is the result of a combination of good crops and a favorable price situation—a combination that has rarely been witnessed in recent years," says the publication. "The sale of a larger aggregate output at a higher average price level is expected to bring the cash income of farmers this year to the highest figure since 1929. Although the estimated total for this year is about 14 per cent below that of $10,479,000,000 reported for 1929, the relative amount of purchasing power represented is considerably greater than this comparison would indicate because of the substantial net decline that has taken place in the general level of prices that farmers must pay."

Air Conditioning

Air-conditioning contracts closed in Chicago in the first nine months of 1937 set a new all-time record, both in number of installations and capacity, Commonwealth Edison Co. has reported.

Contracts for 549 installations were made compared with 398 in the first nine months of 1936, an increase of 38 per cent. Capacity aggregated 11,367 horsepower, compared with 7,099 horsepower in the corresponding period last year, a gain of 60 per cent.

Contracts for the first nine months of 1937 included sales of 291 electric room cooler units, compared with 184 in the same period of 1936.

Supply

C. S. A. Annual

- *Central Supply Assn. annual meeting in Chicago draws large attendance—Speakers discuss current low prices for plumbing and heating equipment, building prospects, modernization, co-operation*

The campaign to refute high cost propaganda was one of the principal topics of discussion at the fourth annual meeting of the Central Supply Assn., held in the Morrison Hotel, Chicago, October 27 and 28.

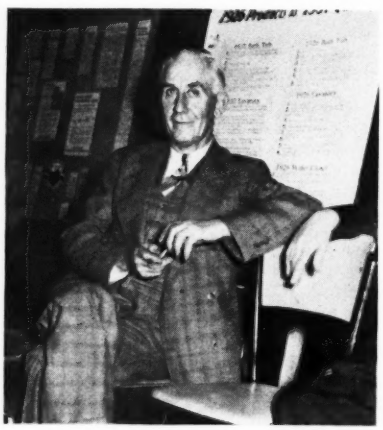
Pres. J. A. Galloup, chairman of the open meeting on October 28, introduced Frank Kaulback, recently elected president, and the speakers.

A highlight of the meeting was the address titled "The Outlook for New Building" by Roy Wenzlick, president of Real Estate Analysts, Inc., St. Louis. He illustrated his talk with a chart showing trends in building, mortgage interest rates, foreclosure rates, vacancies, building material prices, residential rent rates in principal cities and general business. He prophesied a building boom to reach its height from 1943 to 1945.

Alluding to present conditions as influenced by the stock market break of the last two months, Mr. Wenzlick said, "I will not say building will be active this winter. It will not. But while the short trend is down, the fundamental trend is generally upward.

"The real estate and construction cycle is totally different from the business cycle," he stated. "While the business cycle is always irregular, the building and construction cycle is regular. Further, business operates on a short cycle while the curve for real estate and building averages eighteen years from peak to peak. The curve goes up in eight years and down in ten.

"We should be at the top of a boom in 1943 or 1944. I see nothing in today's picture which would change this forecast, if we look at more than just the immediate future."



F. S. Kaulback

Discussing so-called over-building, he stated, "Commentators said in 1932 and 1933 that we over-built in boom time. If they are right, then isn't it peculiar that when we were building fastest vacancies were not increasing? With the bank collapse, vacancies increased. Some of the principal cities now average less than 2 per cent vacancy.

Space Demands

"The fact is that the demand for space is a very elastic proposition and the great vacancy during the depression was due to contraction of space requirements. The same factors which caused that contraction, when they reverse themselves, can destroy that vacancy."

One of the reasons for this fluctuation in vacancies was described as the doubling up and spreading of families. "In the principal cities," said Mr. Wenzlick, "the number of families doubling up with other families during the depression just about equalled the number of vacant units."

Another cause for the large number of vacancies in the cities was the back-to-the-farm movement of 1933, the only year in which the net movement was from urban to rural areas, the speaker pointed out. Since that time, however, approximately a half million people have moved from farms to cities. "As they move back, this creates a shortage situation on homes in the cities. That causes the demand for building," said Mr. Wenzlick.

Among the factors mentioned as contributing to the housing shortage were demolition, fires, obsolescence and population growth. An additional factor is the decrease in the size of families. "Sixty-two per cent more accommodations are needed to house 1,000 people than in 1850. We have fewer inhabitable housing facilities right now than we had at the start of the depression."

Decline This Winter

Referring to prospects for the immediate future, Mr. Wenzlick said, "We can't expect any building pickup this winter and I'll be happy to see it even next spring. All industries are going to decline this winter. But not later than next summer you are going to see us making progress again in the building industry."

Coming to the heart of his thesis the speaker asked, "Why do people build? There is only one answer. People build whenever it is cheaper to build a new house than it is to buy a comparable building already standing. The volume of new building in the United States depends solely on the cost of that building in relation to rents and value of older buildings. Every time costs go up, unless you have a comparable rise of rents and values, building is retarded.

"In 1933 the foreclosure rate was at a new all-time high. That meant that more property was being dumped on the market at distress prices than had

ever been dumped on the market before. The prices on buildings already standing were pushed down. People simply could not build in competition with these distress prices on old buildings."

Of financing, Mr. Wenzlick declared, "Credit has nothing to do with the problem. Money will be available for building when it is profitable to build. There is no shortage of credit. There is a shortage of good investment."

Among the factors making for increased building activity for the future, the speaker mentioned rents. "Rents are going up far faster," said he, "than in comparable periods which previously preceded booms. Rents will level off for the present, but in six months will start up again. When they do, and if there are no further increases in building material prices, and in labor costs, you are going to find yourself in one of the biggest building booms we have ever had in the United States.

"There has never been so little building compared to the size of the country as in the past few years. This has led to a tremendous accumulated housing shortage. When we get to the point where the factors that cause new building are favorable, you are going to see a tremendous amount of new building."

Interest Will Rise

"You do not have to have low interest rates to have building booms. Interest rates will be up considerably again before we go into the next real estate building boom.

"First we will have a continuation of the volume of modernization. But today we are building new family accommodations in the United States at about one-tenth of the rate of the last boom."

Speaking of the present low prices in the plumbing and heating industry, Mr. Wenzlick emphasized, "The plumbing industry certainly is to be congratulated on the price showing of plumbing fixtures and of other plumbing supplies in relation to general building costs. While general building material prices are back to about the 1926 level, the prices of plumbing equipment stand at only 78 per cent of the 1926 base. If all branches of the building industry had been able to hold costs down comparably, recovery in construction would be more rapid."

Thomas F. Hanley, Jr., a director of the National Assn. of Master Plumbers and president of the Plumbing Contractors Assn. of Chicago, represented N.A.M.P. Pres. L. J. Kruse and the members of the national plumbers association. Because of a cold, Mr. Hanley turned the prepared statement over to William Merriman to read.

Educate Tenant

Mentioning the general housing shortage, Mr. Merriman also cited lack of adequate plumbing fixtures in apartments and homes. The speaker held that it is the duty of the industry to educate the tenant to demand modern plumbing equipment.

Voicing a strong plea for cooperation of all branches of the industry in advertising, publicity and sales promotion, the speaker said that several master plumbers associations have begun newspaper and radio advertising campaigns.

J. J. Calnan, retiring president of Plumbing and Heating Industries Bureau, talked on the subject, "Turn the Tide of Price Thinking." First he touched on modernization.

"Modernization, I think we will all agree, saw us through the last depression, or perhaps it would be more accurate to say that modernization cushioned the last depression for us. Modernization, fortunately for us, does not have great swings up and down. It runs along at a relatively steady pace year after year.

Modernization Stimulated

"Fortunately for us, too, modernization can be and is being definitely stimulated. I think we are all agreed that the tremendous volume of national newspaper and magazine publicity for the advantages of modern and adequate plumbing and heating which is constantly being obtained through the efforts of the Plumbing and Heating Industries Bureau is widening the modernization market for all of us—contractors, wholesalers, and manufacturers.

"As president of the Plumbing and Heating Industries Bureau for the last two years, I have had an opportunity to observe at first hand the far-reaching scope of the promotional work the Bureau is doing. The members of The Central Supply Assn. have been most generous in their support of the Bureau's activities. It gives me great pleasure to have this opportunity, on behalf of our officers and directors, to thank the association as a whole and

Group of those present at the October 28 open meeting of the Central Supply Assn. in Morrison Hotel, Chicago

also the individual state credit associations for their cooperation.

"To me, one of the fine things about the Bureau always has been, and I hope always will be, the spirit of cooperation between the three branches which this joint promotional work fosters and develops. In the Bureau, we are working together as an industry to widen our collective market. In the Bureau, we are not selling and talking about so and so many tons of cast iron, steel, copper, brass or lead. We are telling the public what plumbing and heating does to make life more convenient, more healthful, and more efficient.

"The value to the industries in having an organization set up to do a publicity job was demonstrated again recently when the Bureau, with the cooperation of other groups and the trade press, turned the spotlight of publicity on the prevailing low prices for plumbing and heating materials. I believe you are all reasonably familiar with what has been done in this connection. At the moment, we are not so much concerned with what has been done as what can be done and what must be done in the immediate future."

For further discussion on the same subject, Mr. Calnan called upon Norman J. Radder, secretary of the Plumbing and Heating Industries Bureau. His address is here quoted in part:

Price Propaganda

"Mr. Calnan has just referred to the impression which seems to prevail in certain quarters that building costs are too high. We in the plumbing and heating industries know that such a criticism is unfair as applied to the products of our industries. With the reports of the United States Department of Labor showing that 78.8 cents today buys as much staple plumbing

J. A. Galloup, retiring president

and heating equipment as a dollar bought in 1926—the base price year—we naturally feel that any criticism that prices are too high is based on a lack of knowledge of the true state of affairs.

"If the public thinks plumbing and heating products are too high, it is up to us to let them know that prices of staples today are 10 per cent below the average for the last twelve years.

"As Mr. Calnan has pointed out, publicity and advertising are being and should continue to be used in getting the facts on plumbing and heating prices over to the public. Indeed, it is a story that lends itself particularly well to publicity. In this connection I wish to acknowledge the splendid cooperation the Bureau has received from members of The Central Supply Assn. in getting this price story over to the public.

"Mr. McCollum and I wish to offer a suggestion on the matter of newspaper publicity. We believe that in all of the larger cities it would be desirable for the president of the credit association to appoint a publicity or public relations committee to assume responsibility for the placing of the releases with the various newspapers. In smaller cities, where there are fewer wholesalers, this may not be necessary.

"In smaller cities it may be desirable for the various wholesalers to take turns in assuming the sponsorship of the releases in the newspapers.

"But newspapers are by no means the only publicity medium for the industry's story on prices. With its usual enterprise, the trade paper, DOMESTIC ENGINEERING, has created an effective window display piece and stickers for use on correspondence. Many wholesalers are making good use of this promotional material.

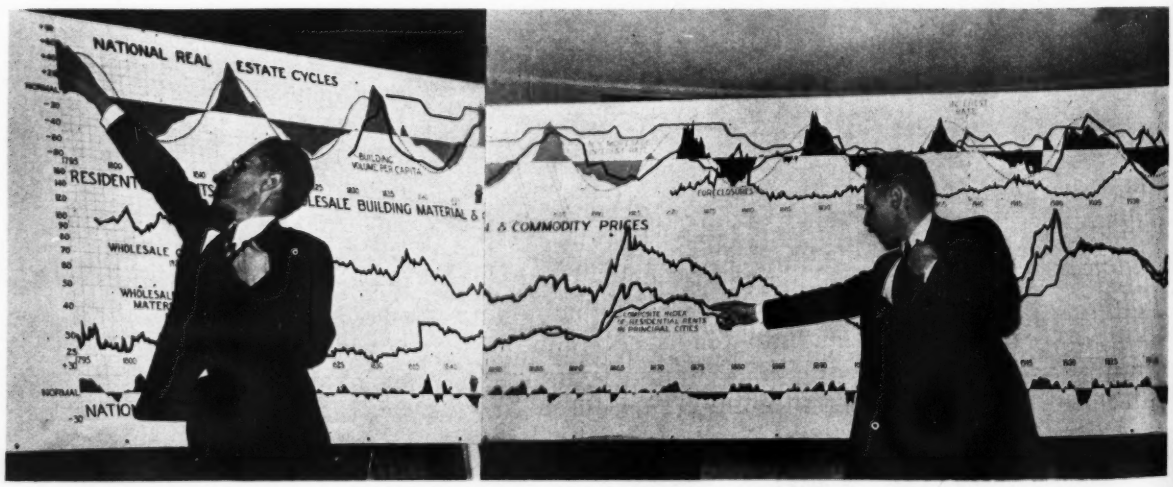
"There are also many smaller local, state, and sectional publications whose cooperation in this campaign should be enlisted. Some of these are circulated among the people in our industries while others are read by the building industry generally. The article, 'We Must Convince Consumer That Costs Have Not Advanced Unduly,' by Mr. W. A. Brecht, president of the Southern Wholesalers Assn., published in the current issue of the *Philadelphia Plumbing and Heating Magazine*, is an example of what wholesalers can do.

Price and Modernization

"The price story of the plumbing and heating industries is particularly significant as applied to modernization work. The shortage of housing is growing more acute. The effect of the housing deficiency will be to increase rents. With rents going up, modernization will become increasingly profitable. Mr. Calnan called your attention to the activities of the Bureau in obtaining a tremendous volume of news-

(Continued on page 120)

Roy Wenzlick traces the history of the building industry from 1795 to the present



EASY TO SELL
QUICK TO INSTALL

7 Vital Features

THE NEW Minneapolis-Honeywell Lo-Water Cut-Off has seven vital features—distinct advantages to you as well as your customers. They are easy to sell, quick to install and above all, are now available at New Low Prices.

1 • **QUICKLY INSTALLED** . . . Fits standard half inch gauge glass openings. Lower fitting may be readily removed if there is not enough room to swing entire assembly.

2 • **FLEXIBLE MOUNTING** . . . Copper tube between mountings can be cut to accomodate various center dimensions and easily shaped to allow for any slight misalignment.

3 • **ALARM OR SIGNAL CIRCUIT** . . . this feature is available, on special order, as is the reset mechanism which requires manual attention, after a shut-down, to restore burner operation.

4 • **DISMOUNTING UNNECESSARY** . . . Switching mechanism may be removed without dismounting instrument from boiler.

5 • **IMPROVED MERCURY SWITCH** . . . Control circuit is handled through an improved switch with a reputation for efficiency, quick action and rugged construction.

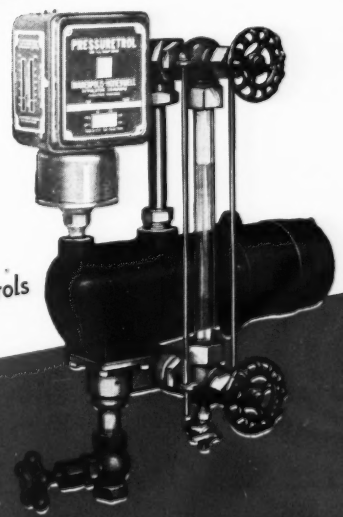
6 • **M-H QUALITY THROUGHOUT** . . . The reputation of Minneapolis-Honeywell behind this cutoff is your assurance and the assurance of your customer that this instrument will give long years of trouble-free protection.

7 • **NEW LOW PRICES** . . . Despite the distinct advantages of the Minneapolis-Honeywell Lo-Water Cut-Off, prices are far less than you would expect to pay for a quality instrument.

If you have not already seen the new M-H Lo-Water Cut-off, investigate at once. Your jobber or any Minneapolis-Honeywell branch or district office can give you full particulars. Minneapolis-Honeywell Regulator Co., 2801 4th Ave. So., Minneapolis.

■

When the M-H Pressuretrol, as illustrated in phantom, is added to the Lo-Water Cutoff, the assembled instrument is known as a Duplex Switch.



Dealer's Net Price
$14.25 each
$13.55 in lots of 10 assorted units

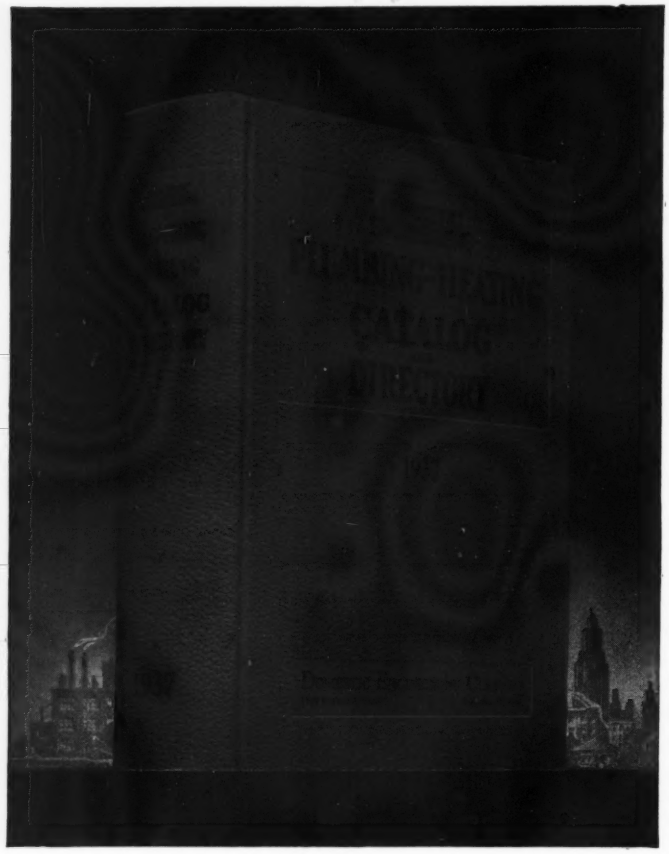
Brown Industrial Instruments • National Pneumatic Controls

MINNEAPOLIS-HONEYWELL

AUTOMATIC CONTROLS MH

LO-WATER CUT OFF

"DEPENDABLE CONTROLS COST LESS THAN SERVICE"



Size 8½" x 11"—Letterhead Size—Bound in Fabrikoid

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Because the manufacturers whose names are listed on the opposite page have made their products EASY TO BUY by consolidating their buying and specifying data in one volume—all for the convenience of the buyer and specifying engineer of plumbing and heating equipment.

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Because Domestic Engineering Plumbing and Heating Catalog-Directory revises the edition every year. Information is received from the field and carefully tabulated all year 'round and then distributed with up-to-the-minute information that is used daily by those who buy, specify, and write the orders for plumbing and heating equipment.

Always Available:

Because it simplifies the task of buying and specifying, the Catalog-Directory is kept at the finger-tips of the Trade and relieves a burdensome problem of the busy buyer and specifier. Hundreds of manufacturers' catalogs, technical data, and a classified directory—all of which are instantly available for ready reference.

The Only

CATALOG-DIRECTORY PUBLISHED EXCLUSIVELY *for the* PLUMBING & HEATING INDUSTRY

• • •

What the Book Contains:

Manufacturers' Catalog Section:

542 pages of valuable buying information placed in this section by leading Manufacturers of Plumbing and Heating supplies insure utmost value to the Buyer. This material is clearly arranged and generously illustrated to facilitate rapidity and ease in locating the desired materials. The Manufacturers who show their products in the Big Orange Book are listed in BOLD-FACED TYPE throughout the Directory Section, preceded by a ★, together with the page numbers on which their products are shown.

Tables and Rules Section:

52 pages of technical data containing standard tables, rules, charts and diagrams add to the value of this handy book . . . information used and needed in your daily work.

Classified Directory Section:

Over 1300 classifications are found in this comprehensive section which lists virtually every item manufactured for the Plumbing and Heating Trade. Under each heading will be found the names of the Manufacturers of that particular product. Advertisers are prefaced with a ★. Trade Names also are listed, followed by the Manufacturers' names.

Name and Address Section:

The names of more than 4000 Manufacturers in the Plumbing and Heating Industry, together with the street address and city, are listed in this section.

DOMESTIC ENGINEERING COMPANY

Catalog-Directory Dept.

1900 Prairie Avenue • • • Chicago, Illinois

An Exclusive Service for Manufacturers, Wholesalers, Buyers and Specifiers of Plumbing and Heating Equipment.

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Acme Asbestos Covering & Flooring Co.
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Burnham Boiler Corp.

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Cascade Foundry Co.
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Healey Brass Foundry Co., Peter
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Supplement in order to save time for the Buyer of Plumbing and Heating items by making their products Easy to Buy.

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Col. G. F. Jenks, (left, front row) chairman of award committee of American Welding Society, presents Lincoln Gold Medal to T. M. Jackson (right) in the presence of A. E. Gibson, society president, (middle, back row), E. R. Fish, society senior vice president, (left, back row) and Miss M. M. Kelly, secretary

Welding Society

The American Welding Society held its eighteenth annual meeting and welding exposition in Atlantic City, N. J., October 18 to 22.

The meeting was opened by an address of welcome by Pres. A. E. Gibson who reported progress during the past year in attainment of the society's objectives and predicted still greater progress during 1938. He reported an increase in local sections from 12 to 23 and a gain of nearly 100 per cent in membership.

A high point of interest was the presentation of the Lincoln Gold Medal to T. M. Jackson, chief electrical and welding engineer, Sun Shipbuilding and Dry Dock Company, of Chester, Pennsylvania. The medal was awarded Mr. Jackson as author of the best paper on welding, published in the Journal of the Society, during the past year.

T. B. Jefferson, associate engineer of the U. S. Engineer Department, gave a dramatic account of the outstanding part welding is playing in the Government's dam-building program.

"While the use of welding as a fabricating tool has assumed a position of prominence in the construction world, the equally important application of welding for the repair and maintenance of construction plant has been much less obtrusive. That the development in this field is almost as great as in the field of permanent installations is clearly shown from the experiences at the Fort Peck Dam.

One of the inventions exhibited at the convention was the use of high frequency electric current, between 150 and 300 meters in wave length, for rapid welding. The process welds steel and copper alloy sheets at the rate of 30 to 60 a minute.

Water Systems

With sales of electric water systems for the current year promising to exceed 210,000 units, members of the Electric Water Systems Council, at a meeting in Chicago on October 4, made plans for an expansion of the campaign in 1938.

Enthusiastic approval of the campaign was expressed by members of the council. It was pointed out that increasing farm income, the extension of rural power lines, and the growing demand for the convenience of running water on the farm all combine to create a steadily widening market in 1938.

"The dealer has the green light for 1938" was the general concensus of the manufacturers in commenting on the receptivity of the market for the efforts of aggressive dealers.

Sales Information

"During 1937 the council laid the groundwork for a successful campaign by placing in the hands of dealers and distributors the sales manual, 'Where Water Runs, Dollars Flow'," said Herbert C. Angster, secretary-director of the Electric Water Systems Council.

"Many encouraging reports on the successful application of the commonsense sales information in this manual by dealers have been received by participating manufacturers.

"It is evident that those dealers who tied up with the campaign by following the suggestions in the manual, by cooperating with their local power companies, and by aggressively going after business, have had the best year in the pump busines they have ever had.

"For 1938 the manufacturers and the utilities cooperating in the campaign are planning a further expansion of their joint efforts to widen the market.

"A new booklet to take the place of 'Life in the Country' will be prepared for distribution by the power companies to new meter connections.

"The new book will be a streamlined 1938 story of what running water means to the farm family. When placed in the hands of a farm family, the new booklet should have the effect of creating a desire for an electric water system. It is up to the dealer to see that this desire is translated into action."

Another factor of no small importance in widening the market in 1938, according to the council, will be building activity just "beyond the water mains."

Members of the council at their meeting on October 4 reviewed statistics showing that the maximum residential building activity in the United States today is in suburban towns and villages of from 5,000 to 10,000 population. In order to escape high real estate valuations in cities, home builders are seeking relatively inexpensive locations on the outer rim of the city.

Reports from some cities indicate that from one-quarter to one-third of residential construction is beyond the water mains. Members of the council in their discussion emphasized the widening market for electric water systems created by this new trend.

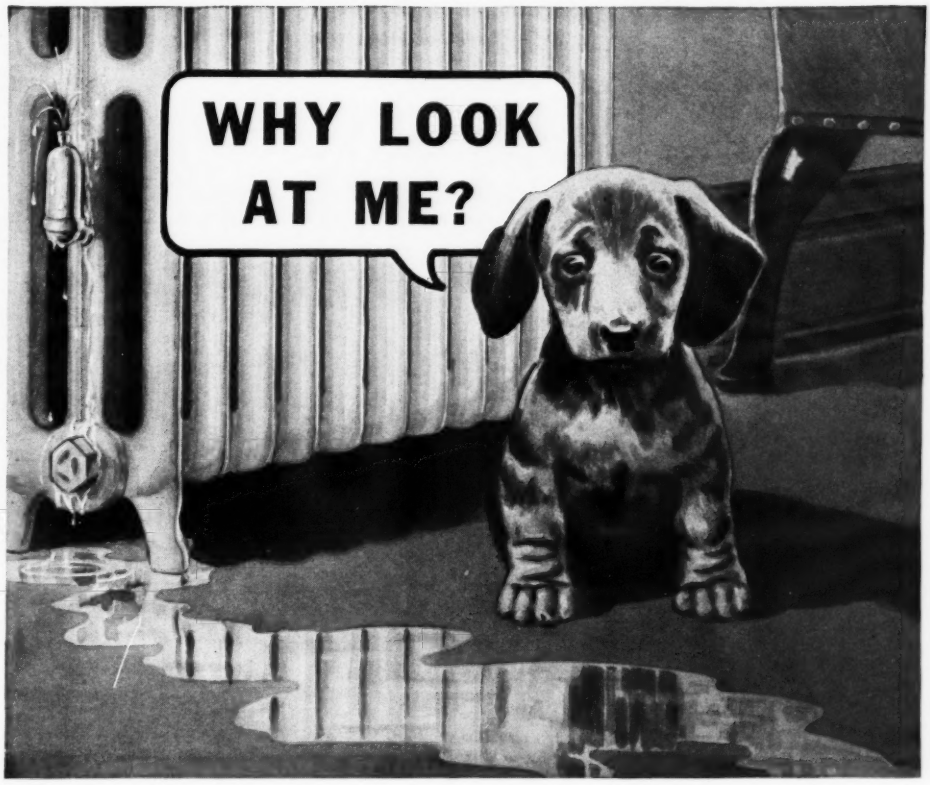
Other Equipment

It was pointed out that most of the construction in suburbs is in the higher price brackets, thus involving the sale of a water system—often a deep well installation—of considerable capacity. It was pointed out, too, that the dealer who aggressively cultivates this market is automatically creating sales for auxiliary equipment such as water softeners and water heaters, in addition to the septic tank and the plumbing fixtures and the necessary piping.

In reviewing the cooperative sales promotion efforts of the manufacturers of electric water systems and the power companies carried on by the council, Mr. Angster pointed out that the program was begun in 1934.

"Previous to 1936, the all-time high in the sale of pumps was established in 1929 when 123,000 units were sold. It is evident that the 1937 total of 210,000 units will be nearly double the total for 1929 and four times the 1932 volume of 48,000 units.

"The difference between the 1932 total of 48,000 and the current sales of 210,000 units is roughly 160,000 units. Even if sales were confined to 160,000 pumps, this would be no mean achievement. The point is, however, that the sale of 160,000 pumps involves the sale of a vast amount of auxiliary equipment such as tanks and pipe."



Use a "HOUSE-BROKEN" air valve!

THE owner of a heating plant may not know much about the fine spun mechanics of an air valve, but he does know a thing or two about how they should behave. He just won't put up with a "dribbler"!

So that time-honored ability of Marsh Air Valves to close good and tight the moment steam or water enters, would mean a lot, even if it were not combined with a number of other features that mean even more from the standpoint of heating efficiency and fuel saved.

All Marsh Air Valves clear down to the modestly priced "Travall" make a thorough job of all the things they are designed to do, but standing at the head of the list is a super-performer, the New No. 2 Air and Vacuum Valve. Here is a valve that vents air faster than any other valve we ever made. In fact, it vents air so fast that the radiators farthest from the boiler heat almost as rapidly as the nearest radiator. Since the radiators are all heated quickly, there is no need to "juggle" the air ports or air-bind the "fast heater" to compensate for the slow heater—and that means a lot of time and trouble saved.

The New No. 2 also has a triple vacuum seal—a vacuum-lock so bottle tight it will hold any vacuum that can be produced. With this finest of vacuum valves, and the other equally fine Marsh basement vents, you can modernize one-pipe systems with full assurance that your customer will never have a cause for complaint.

Remember that the Marsh line is the oldest line, the broadest line, and in the opinion of thousands, the best line. Ask for latest bulletins and discount sheets.

JAS P. MARSH CORPORATION, 2051 Southport Avenue, Chicago, Ill.

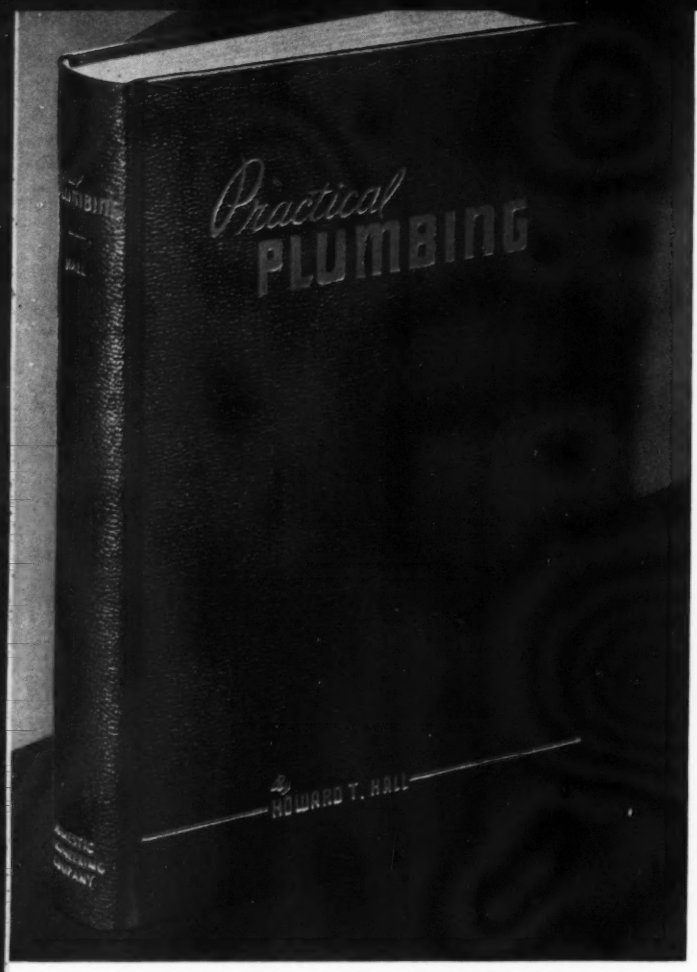
● **MARSH NEW No. 2**
Air and Vacuum Valve
Chrome finish in display package — ⅛" angle or straight pattern, ¼" straight pattern, ¾" male and ⅜" female straight pattern.

● **MARVAL No. 2**
Air and Vacuum Valve
Chrome finish in display package — same sizes and patterns as No. 2.

● **MARVAL No. 1**
Radiator Valve
Same quality as Marval No. 2, but without vacuum feature — same sizes and patterns as No. 2 valves.

● **"TRAVALL"**
A moderate priced nickel plated valve in same sizes and patterns as shown above.

MARSH MAKES ALL RADIATORS FAST **AIR and VACUUM VALVES**
Your Jobber Stocks Them



TO THE Point!

PRACTICALLY, thoroughly, authoritatively, this book covers every phase of modern plumbing. It's a book which will enable you to eliminate guesswork and the element of chance from your plumbing installations. It permits you to KNOW THE FACTS before you undertake any kind of plumbing job. With its aid you avoid costly, dangerous mistakes.

PRACTICAL PLUMBING takes you directly TO THE POINT on every subject it covers. Only when necessary to demonstrate the origin of a common practice is theory resorted to. You'll find this book as interesting to read as it is convenient to refer to. Interspersed in its 365 pages of meaty, authentically informative material you'll find a large number of diagrams, charts, tables and illustrations to simplify the use of this book. The alphabetical, ready reference index in the back of the book makes for even greater convenience when some particular plumbing problem is under consideration.

Once you have your copy of PRACTICAL PLUMBING you'll consider it an important business asset . . . a book you can scarcely afford to be without. At $3.50, you'll agree it's a wise investment and an attractive addition to your trade library. Better order yours today.

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● PART IV

PLUMBING FIXTURES AND MATERIALS. Chapter XVII.—Water Closets and Urinals. Chapter XVIII.—Other Types of Plumbing Fixtures. Chapter XIX.—Insulation. Chapter XX.—Pipe, Fittings and Materials. Chapter XXI.—Mathematics and Mathematical Tables.

IN THIS BOOK!

PRACTICAL PLUMBING contains 365 pages—it is divided into 4 parts which are subdivided into 21 chapters. It is well illustrated with 292 drawings and has 61 special tables . . . a large number of standard tables . . . complete set of plumbing symbols . . . all completely indexed . . . size 5¼x8¼ . . . bound in semi-flexible cloth cover . . . a worthwhile addition to any business library.

AVOID COSTLY MISTAKES

ONLY $3.50 POSTPAID

Practical PLUMBING COVERS EVERY PHASE OF PLUMBING

Harvester Moves

One of the largest and fastest moving jobs on record took place the weekend of October 8 to 10 in the transfer of the International Harvester Company general offices from 606 South Michigan Avenue, Chicago, to a 23-story building at 180 North Michigan. The work was begun after office hours Friday, October 8, and was completed by 1 P. M. the following Sunday. More than 300 van loads of furniture and equipment for an office personnel of approximately 1,000 were moved during Friday and Saturday nights and Sunday forenoon.

Erected in 1927, the building was bought by the company in February, 1936, and within the last several months has been extensively remodeled inside for the most efficient utilization of floor space.

The new Harvester Bldg. has a frontage of 95 feet on Michigan Ave. and 129 feet on Lake St. Of the 23 floors, the company has taken the 5th to 19th, inclusive, for its own use, the rest being occupied by other tenants. A remodeling and improvement program throughout the 150,000 sq. ft. gross floor space has been completed. The improvements included the installation of the most modern heating and ventilating, sound-proofing, lighting, and general operating equipment.

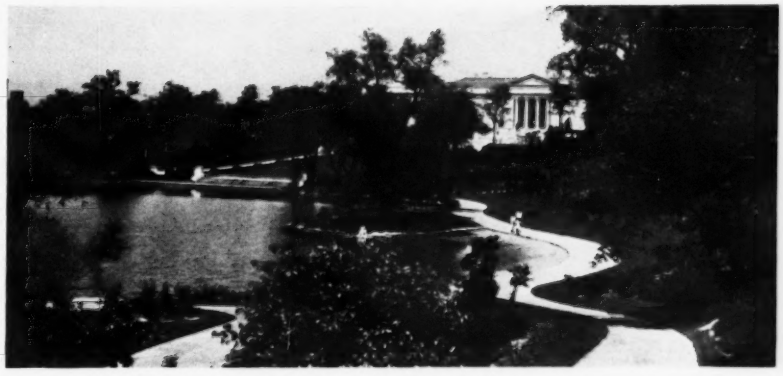
The ventilating system will operate the year round and will effect eight to nine complete changes of air per hour. A system of indirect lighting has been installed. By use of acoustical tile for ceilings, sound-proofing has been provided for stenographic, tabulation, telegraph, teletype, and telephone control rooms.

Throughout the Harvester quarters, all low-tension wires are channeled through metal baseboard, with telephone wires and those for operating annunciators, buzzers and the like conducted through separate troughs in the baseboard. The troughing is accessible at numerous points for quick changes of outlets or for installing new ones.

Telephones are the new combined cradle hand sets, in which all equipment for each instrument is combined in a single unit. Operating through a semi-automatic switchboard, all interoffice and outside calls, except those for long-distance tolls, are dialed.

Jobbers Dance

Jobbers' Credit Association, Inc., will hold its annual dinner-dance at the Hotel Commodore, New York City, on November 6. The party is formal. Glenn B. Van Burean, secretary, at 342 Madison Ave., is making the arrangements.



View of Museum of Art at Cleveland, Ohio, N.A.M.P. 1938 convention city

Radio Talks

Rolland J. Hamilton, president of American Radiator Co., New York City, is one of several business leaders selected by the Department of Commerce to broadcast nationally a weekly series on topics "pertaining to current economical and social problems." The broadcasts are scheduled for 4:30 to 5:00 Eastern Standard Time Tuesday afternoons over the entire Columbia Broadcasting System. The first was made on October 19.

Commerce Sec. Daniel C. Roper, in explaining the purpose of these national business broadcasts, emphasized his belief that "the best way to solve many of our most profound social and economic problems is to give the public a complete understanding of all of the facts involved. It is a definite united effort by government and industry to bring to the public a more comprehensive understanding of the problems of industrial and commercial management."

Eastern Meeting

The Automatic Burner Corp. held a meeting and dinner recently for eastern distributors and dealers of the company. The meeting was held at the Park Central Hotel in New York City. Joseph Hirsch, vice president and sales manager of the company, presided and led the discussion at the meeting.

Ralph E. Caldwell, merchandising counsellor, demonstrated the correct sales story and also described a new method of recruiting and training salesmen. Other speakers during the course of the meeting were: J. M. Studner, New York distributor; J. W. Warner, sales manager of the Wilmington area; C. W. Whitney, president of the ABC Oil Burner and Engineering Co. of Philadelphia; Walter Slayton of the Webaco Oil Co. of Rochester; and several others.

Mueller Branches

J. G. Werner has recently been appointed Philadelphia manager for L. J. Mueller Furnace Co., Milwaukee, with offices and complete warehouse stocks at Delaware and Morris Sts. A similar set-up has been established at 405 W. Warrington Ave., Pittsburgh, Pa., with Karl E. Kahley in charge.

The Mueller company's Eastern headquarters office has recently been moved to larger quarters in the Candler Bldg., 123 Market Pl., Baltimore, Md. C. L. Hewitt, Jr., Eastern sales manager, states that this warehouse will perform, in addition to local service, supplementary shipping service to many Eastern points from Maine to Florida.

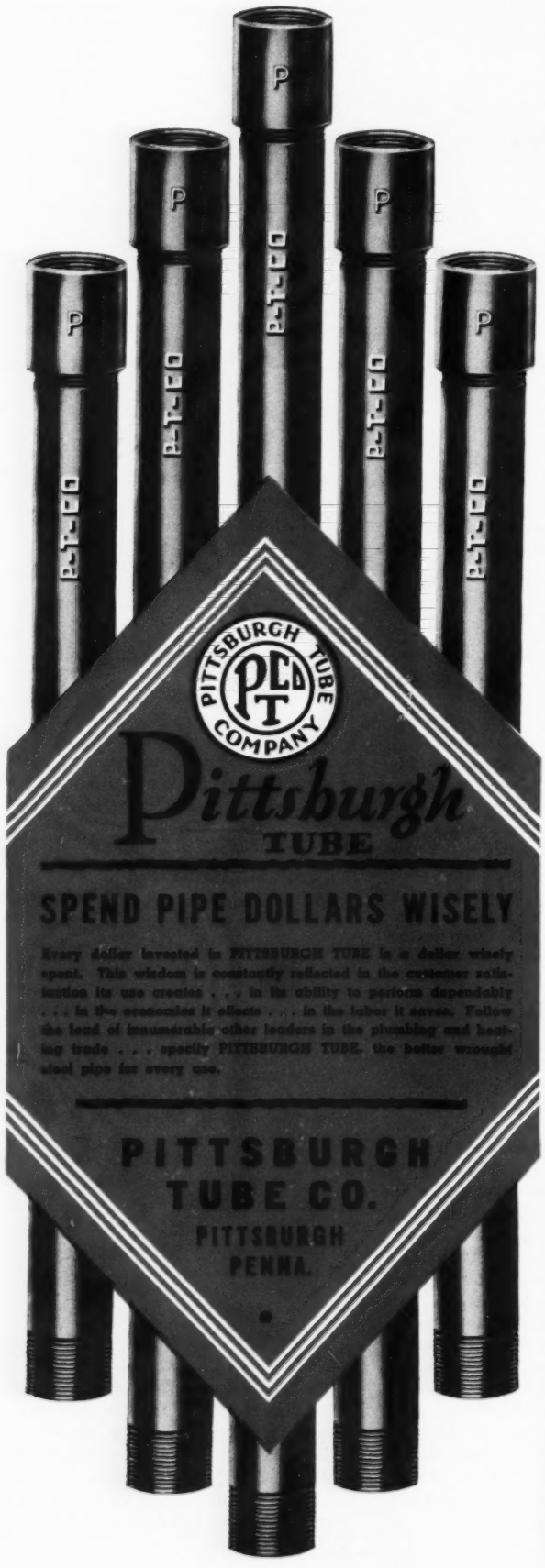
A. C. School

The Westinghouse Electric & Mfg. Co. school for air conditioning application engineers in East Springfield, Mass., closed Oct. 29. Seventy students were enrolled. Lectures by company experts were supplemented by outside authorities. Walter Goodwin was engineer in charge.

"I recommend to any young man today who has an aptitude or liking for things electrical or mechanical to carefully consider air conditioning as a life work," declared Vice Pres. A. E. Allen at the opening session. "Recent investigations and studies have proved that the air conditioning industry is in a position to absorb between 5,000 and 7,000 trained men per year for the next ten years."

Crane Meeting

One hundred and fifty representatives of 54 plumbing and heating establishments in Cincinnati attended a recent dealers' meeting arranged by Crane Co., Chicago. The purpose of the meeting was to outline sales helps for dealer use. An exhibit was one of the features.


PITTSBURGH TUBE COMPANY
PCD T
Pittsburgh
TUBE
SPEND PIPE DOLLARS WISELY
Every dollar invested in PITTSBURGH TUBE is a dollar wisely spent. This wisdom is constantly reflected in the customer satisfaction its use creates . . . in its ability to perform dependably . . . in the economies it effects . . . in the labor it saves. Follow the lead of innumerable other leaders in the plumbing and heating trade . . . specify PITTSBURGH TUBE, the better wrought steel pipe for every use.
PITTSBURGH TUBE CO.
PITTSBURGH PENNA.

Plumbing—

(Continued from Page 89)

densing tank is not trapped into the drainage line and the discharge from the boiler to the tank is carried to the bottom instead of opening above the water line.

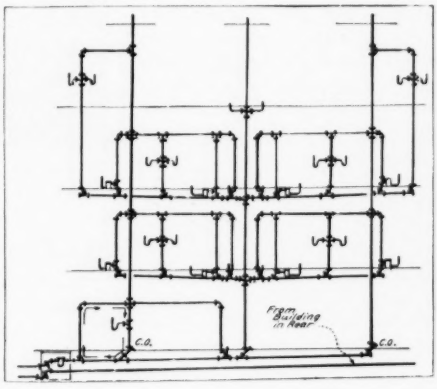


Fig. 10—The top floor lavatories are left in an awkward position by this method of venting. This drawing ties in with Fig. 7

Regarding the regular house plumbing in Figs. 4, 7 and 5, Fig. 7 would be perfect if the top floor water closet were not unnecessarily vented. In Fig. 4 the lower water closet may be vented by the lavatory waste and

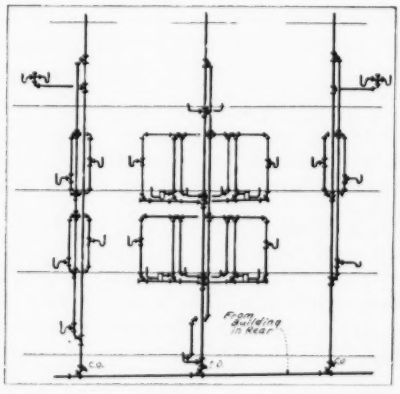


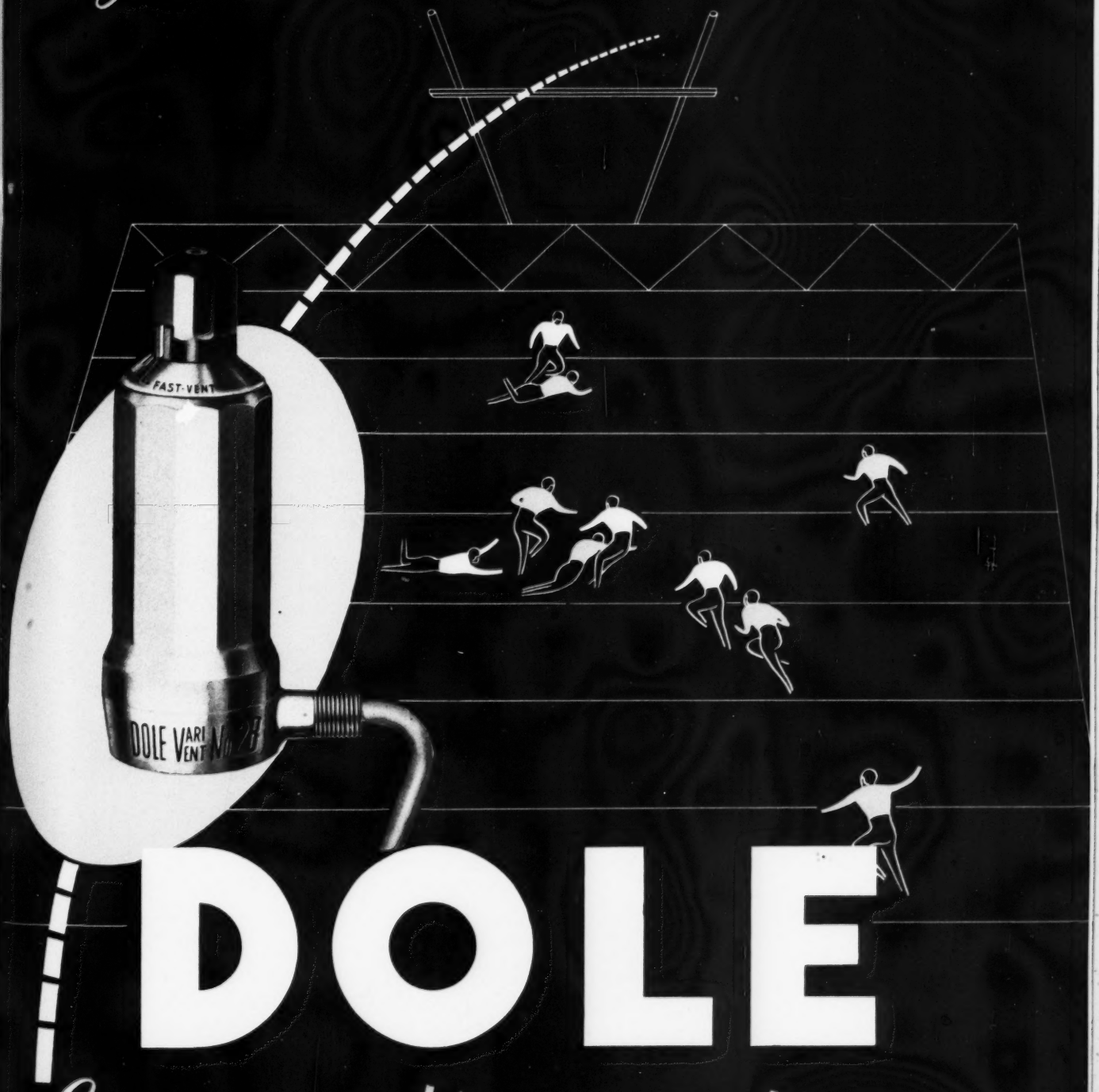
Fig. 11—E. J. T., New Jersey, submitted this drawing. The same criticism that applies to Fig. 10 applies here. Also see Fig. 5

vent, if of sufficient size, but this vent should not connect into the vent from the garage catch basin. In Fig. 5 all of the bathroom fixtures have vents, but if installed as advised for Fig. 7, none of these three vents would be required.

The new drawing problem is presented in Fig. 1. It will be noted that none of the fixtures are vented and, in general, the layout is about as bad as it is possible to conceive.

One point for discussion might be the way in which fixtures A and B are at present connected and the possibilities for siphonage which exist here.

THE *Line* OF LEAST RESISTANCE

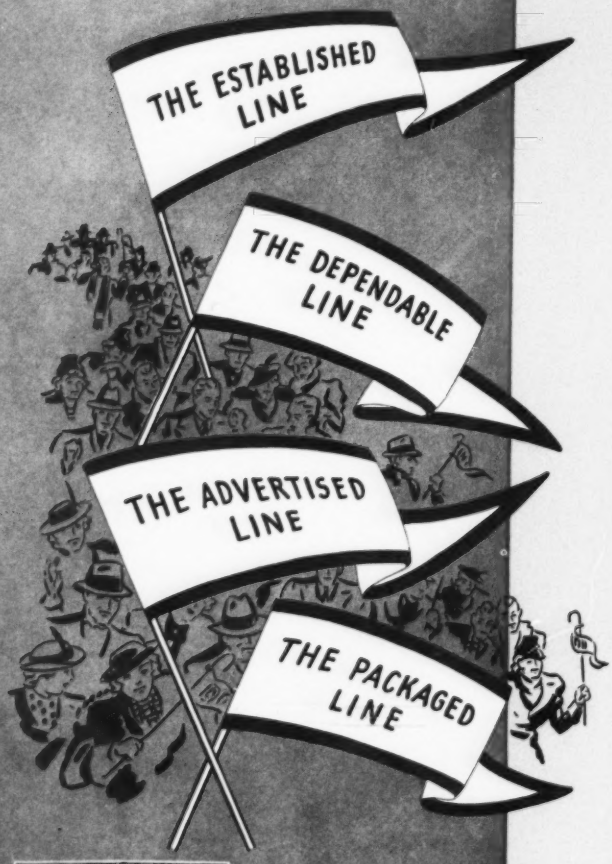


DOLE

Air and Vacuum Valves

Read on the next page how DOLE takes out the resistance ▶

Dole CLEARS THE WAY FOR PROFITS



● The steamfitter, selling heating specialties, who can *defeat sales resistance* is *right in the money!*

With the Dole Line, trained down for fast selling, sales resistance is overcome FOR YOU . . . and there is no extra expense taking away any part of your full profit.

The bright chrome shells, and clean lines of the valves; their brilliant-colored boxes and cartons, please the customer's eye. He instinctively wants *this valve* if it will do the required job. And at this point your customer finds every assurance that it will.

Being FAVORABLY KNOWN *is Half the Battle*

Dole Valves, as you know, enjoy a good reputation for *reliable performance.* In the fullest sense of these words the patented mechanisms of Dole Valves respond promptly every time the radiator heats or cools. They are approved everywhere for their quick venting—and the Vari-Vent models do a good job of *balancing* radiators to individual heat requirements.

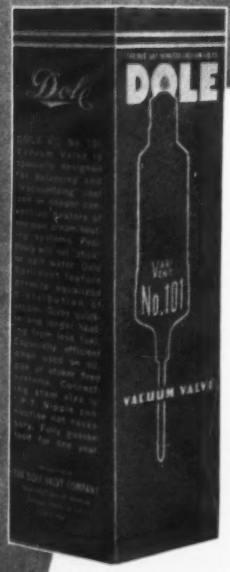
Being WIDELY KNOWN *Completes the Victory*

The natural resistance to a product he "never heard of" has been swept out of the customer's mind by *consistent* Dole advertising to *volume* buyers such as real estate operators, hotels, hospitals, etc.

Plus this year's advertisements to more than a million and a half home-and-comfort-loving families through the national circulation of Better Homes & Gardens.

Such "interference" by the manufacturer, with the factors that might slow up your profit, really makes Dole Valves *easy to sell*—makes them truly "the line of least resistance."

THE DOLE VALVE COMPANY
1901-41 Carroll Avenue **Chicago, Illinois**
Offices and Representatives in All Principal Cities



The package designs, as a mark of the care used at every step of manufacturing and merchandising, won the All-American Packaging Award.

DOLE
Air and Vacuum Valves

Printed in

Bureau Annual

• *Plumbing and Heating Industries Bureau holds yearly meeting in Chicago, October 27—Wm. M. Byrd, Jr., elected president—Substantial gains in membership, financial support and publicity reported*

Wm. M. Byrd, Jr., vice president of the Alabama Pipe Company, was elected president of the Plumbing and Heating Industries Bureau at the annual meeting in the Morrison Hotel, Chicago, October 27.

George E. Hoffman, manager of the plumbing and heating sales department of Crane Co. and vice president of Trenton Potteries, was elected vice president. Charles K. Foster, executive vice president of the American Radiator Company and a member of the Board of Directors of the Standard Sanitary Manufacturing Company, was re-elected treasurer.

Mr. Byrd, who is widely known throughout the plumbing industry, has served two terms as vice president of the Bureau. He was chairman of the Bureau's Finance Committee in 1935.

Mr. Byrd succeeds John J. Calnan who was president for two years. Mr. Calnan was highly commended at the annual meeting for the progress made by the Bureau under his capable administration.

Directors Elected

The following directors were elected: John M. Kohler, treasurer, Kohler Co., representing the Sanitary Cast Iron Enameled Ware Association; Harry F. Beglen, vice president, Standard Sanitary Mfg. Co., representing the Vitreous China Plumbing Fixtures Association; A. C. Brown, president, The Chicago Faucet Co., representing the Sanitary Brass Institute; Norman J. Gould, president, Goulds Pumps, Inc., representing the Electric Water Systems Council; Chas. K. Foster, executive vice president, American Radiator Company, representing the Institute of Boiler and Radiator Manufacturers; W. C. Beschorman, executive vice president, National Lead Co., representing the Lead Industries Association; Wm. M. Byrd, Jr., vice president, Alabama Pipe Co., representing the Cast Iron Soil Pipe Association; R. B. Dickson, president, Kewanee Boiler Corporation, representing the Steel Heating Boiler Institute; Mr. Elton S. Wayland, vice president, American Brass Co., representing the Copper and Brass Research Association; E. J. Gossett, president, Bell and Gossett Co., representing heating specialty manufacturers; R. L. Stewart, vice president, Stockham Pipe Fittings Co., representing the Valve and Fittings Institute; W. J. McKee, assistant general manager of sales, National Tube Co., representing steel pipe interests; Wm. A. Brecht, president, Hajoca Corporation, representing the Southern Wholesalers Association; F. S. Kaulback, manager of branches, Standard Sanitary Mfg. Co., representing The Central Supply Association; Charles Millar, president, Charles Millar & Son, representing the New York State Association of Wholesalers of Plumbing and Heating Supplies; John J. Calnan, past president, National Association of Master Plumbers, representing the National Association of Master Plumbers; George H. Dickerson, vice president, Heating, Piping and Air Conditioning Contractors National Association, representing the Heating, Piping and Air Conditioning Contractors National Assn.; H. T. Richardson, president, Richardson and Boynton Co., representing the Eastern Supply Association; O. T. Carson, president, Domestic Engineering, representing the trade press; and George E. Hoffman, manager, plumbing and heating sales department, Crane Co.

Norman Radder, secretary-manager

William M. Byrd, Jr., new president

John J. Calnan, retiring president

Substantial gains in membership, greater financial support, and a corresponding increase in publicity linage were reported by the officers of the Bureau.

A. C. Brown, president of The Chicago Faucet Company, chairman of the 1937 Finance Committee, reported that 37 associations contributed a total of $17,472.50.

Financial Prospects

"The committee hopes that subscriptions next year will show at least as great an increase. With reference to next year's subscriptions, the committee urges all associations and individual contributors to make their pledges as early in the year as possible. In fact, if pledges for next year could be made during the two remaining months of this year, it would be exceedingly helpful.

"The number of contributing associations has increased from 27 in 1936 to 37 in 1937.

"I should like to take this opportunity to express my appreciation to all members of the committee for the splendid cooperation they have given me. Members of the committee are Mr. E. P. Corey, General Manager, Tubular Sales, The Youngstown Sheet and Tube Company; Mr. Geo. H. Dickerson, vice president, Heating, Piping, and Air Conditioning Contractors National Assn.; Mr. Chas. K. Foster, executive vice president, American Radiator Company; Mr. Walter J. Kohler, Chairman of the Board, Kohler Co.; Mr. P. R. Mork, vice president, Crane Co.; and Mr. Harry C. Yelton, past president, The Central Supply Association."

A feature of the meeting was the showing of the new slide film, "Capturing Public Attention," dramatizing the publicity activities of the Bureau. The film shows how publicity develops public understanding and appreciation of the importance of modern and adequate plumbing and heating equipment.

In an introductory statement preceding the showing of the film, Norman J. Radder, secretary of the Bureau, explained that the film was submitted as a pictorial report on the activities of the Bureau in 1937.

Mr. Radder said: "Instead of a formal written report on the activities of the Bureau for the current year, it is my privilege to present a pictorial report. We have made a slide-film showing what the Bureau does, how the work is done, and the significance of publicity in relation to the sales promotion activities of the manufacturer, the wholesaler, and the contractor."

The picture began with slides showing the market for the products of the plumbing and heating industries as of 1937—residential, $1,250,000,000; commercial, $700,000,000; educational, $325,000,000; public and institutional, $340,000,000; public works and utilities, $1,100,000,000.

F. B. Hackett, chairman of the nominating committee

Having pictorially reviewed the market for the products of the plumbing and heating industries, the film then proceeded by showing how this market is reached by the Bureau through various publicity media—newspapers, magazines, radio, booklets, manuals, civic clubs, and others.

A picture presentation of Bureau newspaper publicity was made by views showing the press room of a metropolitan newspaper, the various types of articles about plumbing and heating products published in newspapers, the location of the newspapers publishing the articles, the volume of clippings, and the prominent position given to Bureau articles in the building pages of many newspapers.

A. C. Brown, chairman of Bureau Finance Committee

Bureau articles published in prominent magazines of national circulation were shown, including Better Homes and Gardens, American Home, Good Housekeeping, National Real Estate Journal, Hotel Management, Buildings and Building Management, Bankers Monthly, Real Estate Magazine, the Nation's Schools, Church Property Administration, Architectural Forum, Farmer's Wife, Pennsylvania Farmer, the American Restaurant Magazine, Club Management, and others.

Value of Publicity

Special services to member associations were emphasized in a section devoted to convention publicity, publicity manuals for plumbing contractors and plumbing inspectors, assistance with local advertising campaigns, and other services.

Comparative emphasis on the various types of publicity services was shown by a chart. The space value at advertising rates of the total volume of publicity obtained during the preceding twelve months was estimated at $500,000.

In discussing magazine publicity, Mr. Radder related his experience with one of the publications read by owners of filling stations and garages.

"A Bureau article on the need for modernizing filling station rest rooms was published by one of the prominent publications in this field in March, 1933," said Mr. Radder.

"A few days ago another article on the same subject was sent to the same publication.

"In acknowledging receipt of the article and informing the Bureau that it would be published in an early issue, the editor said, 'You may be interested to know that I have just gone through our files to see what we have published in recent years on the important subject of rest room rehabilitation. I find that we have published no article on this subject since the last one you wrote for us. This, as you may recall, was published in our March, 1933, issue.'

"This admission by the editor is significant.

"Here is one of the two leading trade papers in the retail oil field. With thousands of rest rooms in filling stations and garages in a deplorable state; with surveys showing that public patronage favors the station with clean restrooms; and with dealers in a position to cash in immediately on a nominal investment in sanitary equipment, the trade paper of the industry publishes nothing on this important subject except what the plumbing industry is in a position to supply.

"The situation brings to mind the old adage, 'If you want anything done, you have to do it yourself.'

Calnan Reports

"The plumbing industry wants filling station rest rooms brought up to the 1937 standard of sanitation. We have a story to tell. It's up to us to tell it. Obviously nobody—not even the oil industry, which has more at stake than we—will tell it for us."

Following the showing of the picture, Bureau president John J. Calnan read a report in which he suggested that the film be shown at meetings of member associations.

Mr. Calnan said: "All of the member associations of the Bureau have meetings—some once a year and others more frequently. It would seem to me that all association representatives present here today should tell officers of their associations about this picture and arrange to have it shown at the next meeting, if possible.

H. M. Porter, president of Heating, Piping and Air Conditioning Contractors Assn. and vice president, N.A.M.P.

"There is one point about the market which calls for special comment, in my opinion. May I remind you of the statement that reports of sales for the current year show that our market today is 70 per cent modernization and 30 per cent new construction.

"The fact that such a substantial proportion of our products today is being used in modernization work is due, to some extent at least, to the steady flow of publicity for modernization which has been emanating from the Bureau for the past seven years. Our industries, we may recall with some pride, began talking modernization many years before the Federal Housing Administration took up the idea.

"We must continue to look to modernization for a considerable volume of our business for some years to come. I am reasonably certain that the information on building trends which will be given to you tomorrow afternoon by Mr. Roy Wenzlick of St. Louis, distinguished real estate analyst, will be to the effect that, while a housing shortage is continually accumulating, condi-

The top picture is the title frame of the slide-film which serves as a pictorial report of Bureau activities

Publicity stories read by family groups such as the one shown at upper right, result in a plumbing and heating conscious public

At second row left is shown the Bureau production staff at work getting out releases for building page editors

The group of clippings at second row right are a typical day's consignment of plumbing and heating stories

The picture at center row left illustrates efforts made by the Bureau to dispel the false idea that plumbing and heating prices are high

Center right is a group of trade papers which have run plumbing and heating articles

The chart at fourth row left indicates the value of publicity in the various mediums

In the photo at fourth row right John J. Calnan points out to N.A.M.P. Pres. L. J. Kruse the articles published in the latter's home town (Oakland, Calif.) newspaper

At lower left is shown a publicity portfolio for master plumbers

A publicity portfolio for plumbing inspectors is illustrated at lower right

tions as yet are not right for anything approaching a building boom.

"Under the circumstances, what is the wise and prudent thing for us to do?

"Certainly it is to continue to give all possible publicity to the many advantages in modernizing plumbing and heating. Indeed, I think you will agree with me that the volume of publicity should be increased.

"The capacity of publications to use publicity for our products—free, our only cost is the preparation—is still far beyond the budget we have provided, despite the fact that our efficient Finance Committee has exceeded the quota we set for it!

"With improving economic conditions among the farm population, an expansion of our publicity in this direction would be advisable.

"Greater cooperation might well be given to associations, particularly wholesalers and contractors, in publicity matters. Plumbing inspectors have asked for more cooperation than we can now afford to give them.

"It is general market expansion work such as this which could be carried on if sufficient funds were available.

"In conclusion, I wish to express my pleasure in having been identified with the Bureau as a director for five years and in having been able to serve as president of the Bureau for two years. I use the word "pleasure" advisedly. It has been a pleasure to be closely associated with a dynamic and live organization such as the Bureau, engaged in constructive activities.

"The reports of your officers indicate, I believe, that the last two years have shown steady progress in the activities as well as financing of the Bureau.

"I wish to take this opportunity to thank the members of the Board, the members of the Finance Committee, and the officers and directors of the various member associations, and others, for the splendid cooperation they have given me."

U. S. Radiator

A series of meetings have been held recently by the United States Radiator Corporation in Minneapolis, Chicago, St. Louis and Green Bay, Wis.

A product exhibit and dinner was held at the Northland Hotel, Green Bay, September 17, with 102 dealers and architects present. R. F. Connell of the home office discussed oil burning equipment and ratings. Exhibits of Taco, McDonnell-Miller, Bell & Gossett, Hoffman Specialty Company, Dole Valve Company and Hammond Brass Works were displayed.

C. S. A. Annual

(Continued from Page 106)

paper and magazine publicity for the advantages of modern and adequate plumbing and heating.

"There is another important angle to the price situation to which I invite your attention. We hear much today about low-cost housing—about taking care of the housing needs of the underprivileged. What more direct, more practical, method could the plumbing and heating industries adopt than to make the staple products of the industries available at prices which, in terms of the general commodity price level, are absurdly low.

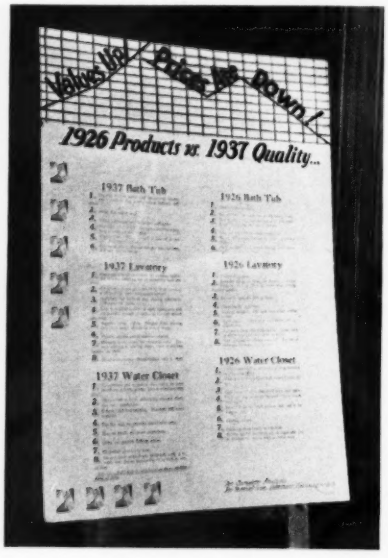


Chart comparing present values of representative fixtures with those of 1926

"Yet the story we have for the public is not one of price alone. It is a much better—a more vital—story than one concerned exclusively with price.

"We have a story about a vastly superior product sold at a lower price. All the way down the line, there have been revolutionary improvements in plumbing and heating equipment—in appearance, in operation, lower maintenance cost, economy of operation, and in protection to health.

"Here's where the manufacturer fits into this program. The manufacturer, it is suggested, will find it to his interest to make available to his distributors information comparing the equipment of today with comparable items sold ten years ago.

"The extent to which a number of manufacturers have already done this is indicated by the two exhibits, 'Quality Up! Prices Down!' prepared by DOMESTIC ENGINEERING in cooperation with the Bureau.

"A manufacturer of boilers and radiators has taken products of today and compared them, step by step, with similar equipment made ten years ago. Unfortunately my time does not permit me to give you those interesting and striking comparisons, but I suggest that you study this effective presentation at the close of this session.

"Detailed information on these striking comparisons showing that the consumer today is getting an infinitely better product for less money will be made available to distributors by the manufacturers and through the trade press.

"We have reviewed briefly what some wholesalers, manufacturers, and contractors are doing to get before the public the story that prices are down and quality is up.

"Others in our industries can and should join in this campaign. Other groups in the building industry—lumber, cement, lime, paint, shingles, insulation, brick, etc.—have a similar dramatic story of product improvement and declining unit price.

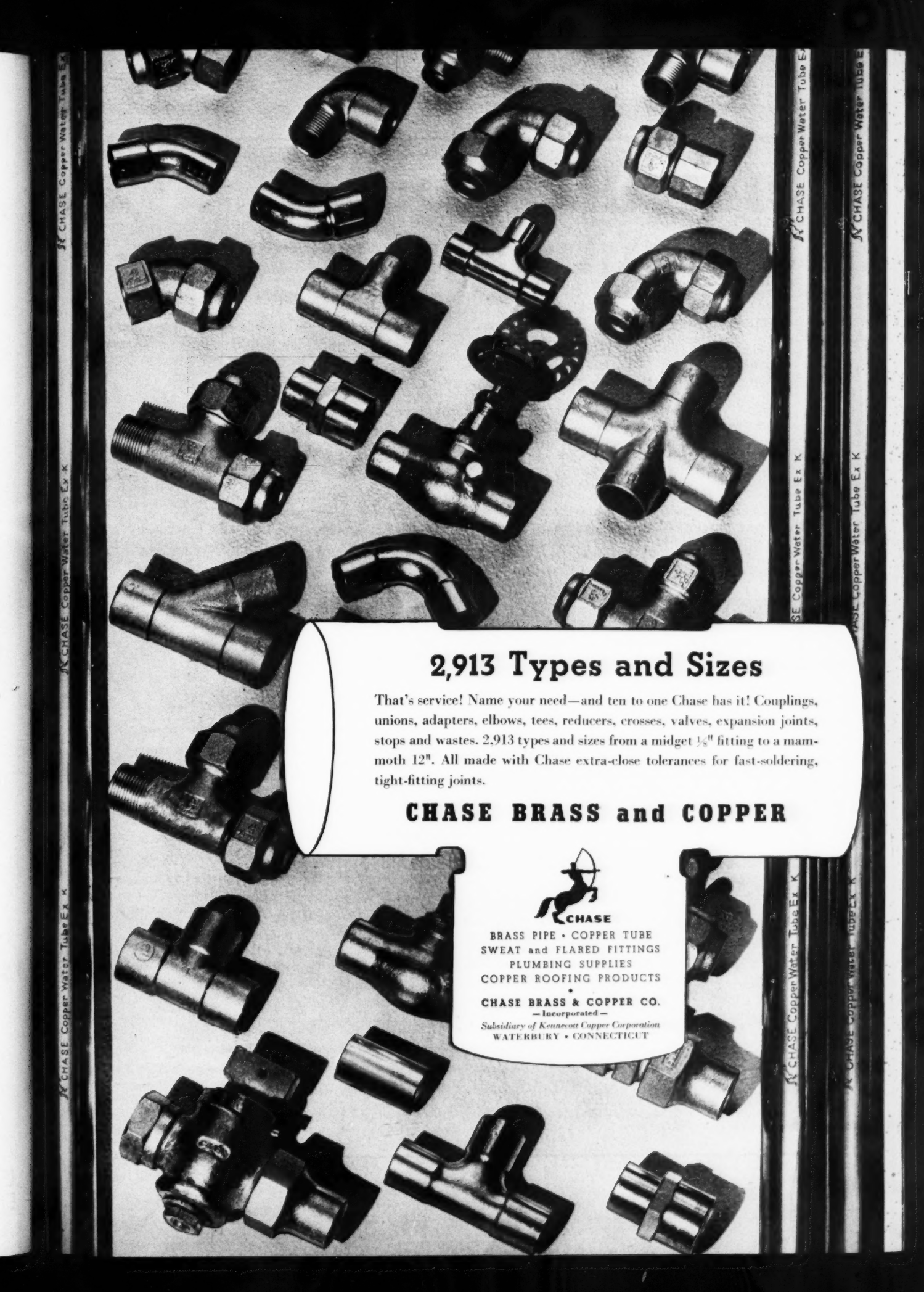
"Representatives of many groups in the building industry are here today and it is suggested that all groups with a stake in the residential building game participate in this campaign to give the public the facts on building material prices.

"The building industry has a virile and dynamic story of product improvement. Boiled down to its essentials it is a story of a better house for less money. Why not see to it that you and everyone in your organization knows this story thoroughly—is fully sold on it—and then tell it whenever and wherever opportunity is presented.

The attendance at the meeting broke all records, 172 wholesalers being present and over 600 representatives of all branches of industry hearing the October 28 speeches and discussion.

Officers elected for the coming year are F. S. Kaulback, Standard Sanitary Manufacturing Co., president; Fred H. Steffens, Hardware and Supply Co., Akron, Ohio, first vice president; A. B. Anderson, Duluth Plumbing Supplies Co., Duluth, Minn., second vice president; E. C. Harbordt, United States Supply Co., Kansas City, Mo., treasurer; W. E. McCollum, reelected secretary.

New members of the association are: Esche Plumbing Supply Co., Milwaukee, Wis.; Malone Plumbing Supply Co., Pittsburgh, Pa.; Harris Pump & Supply Co., Pittsburgh, Pa.; Bowman Supply and Manufacturing Co., Pittsburgh, Pa.; Fox Supply Co., Inc., Denver, Colo.; Danser Manufacturing and Supply Co., Weston, W. Va.; Kelley-How-Thomson Co., Duluth, Minn.


CHASE Copper Water Tube Ex K
2,913 Types and Sizes
That's service! Name your need—and ten to one Chase has it! Couplings, unions, adapters, elbows, tees, reducers, crosses, valves, expansion joints, stops and wastes. 2,913 types and sizes from a midget ⅛" fitting to a mammoth 12". All made with Chase extra-close tolerances for fast-soldering, tight-fitting joints.
CHASE BRASS and COPPER
CHASE
BRASS PIPE • COPPER TUBE
SWEAT and FLARED FITTINGS
PLUMBING SUPPLIES
COPPER ROOFING PRODUCTS
CHASE BRASS & COPPER CO.
—Incorporated—
Subsidiary of Kennecott Copper Corporation
WATERBURY • CONNECTICUT

OVERHEARD
AT A MASTER PLUMBERS' MEETING:

"Boy, I nearly broke my back today putting in one of those old-fashioned, 450-lb. tubs, but you can bet your life I am glad I don't have to do it all the time. That's why I went down and ordered a Briggs safety-bottom recess tub today."

★ ★ ★

"Gee, I didn't know until I heard this talk and saw the pictures showing how the base material was made of pure ingot iron, just how good Briggs Beautyware really is."

★ ★ ★

"I don't know why Briggs don't feature that lip flange on their tubs more. It sure makes a sweet tiling-in job. A lot of other builders I know are just catching on to this."

★ ★ ★

"It didn't take me long to see how the women go for those swell, two-tone color combinations. I always install B. B. fixtures."

★ ★ ★

"I used to work up in Detroit and know some of the fellows at Briggs. I see they just won the soft ball championship over in Chicago. They've got something on the ball when it comes to baseball teams or plumbing fixtures. I have been sold on Briggs Beautyware ever since I learned what Briggs did for the automobile industry. They're doing the same now for the plumbing fixture industry."

★ ★ ★

"When you stop to think that no D.T.U. or mail order house has anything to offer in competition with Briggs Beautyware, that's enough for me."

★ ★ ★

"I just got through with a job where I installed Briggs Beautyware, and there are more net dollars in it for me than I ever made on the same number of installations before."

★ ★ ★

"Now I understand why Briggs Beautyware is rustproof."

★ ★ ★

"That new catalog and price list Briggs got out in August give the plumber a running start when he wants to sell Briggs Beautyware."

★ ★ ★

"The thing I like about Briggs Beautyware is that everyone is talking about it. I never saw so much publicity about any product in the plumbing industry in many years."

★ ★ ★

"That acid-resisting enamel at no extra cost sure helps sales."

● The above statements were made by Master Plumbers and Builders attending recent meetings held by Briggs Beautyware authorized wholesalers, and are printed in the belief that the frank expressions carry a message of unusual interest to Master Plumbers everywhere. Briggs Manufacturing Company, Plumbing Ware Division, Detroit.

New England Wholesalers

- *Talks on price structure, distribution channels, legislation feature annual convention of Plumbing and Heating Wholesalers of New England at Poland Spring, Maine*

The Plumbing and Heating Wholesalers of New England, Inc., held its sixteenth annual convention at Poland Spring House, Poland Spring, Me., on October 11. The morning session was opened by Pres. M. W. Dennison.

Mr. Dennison said that the standard of conduct among members of the association is to lend their support to all manufacturers whose conduct, in turn, is above reproach. He made the declaration that all branches of the industry, manufacturers, wholesalers and contractor-dealers should work together. He stated also that association members had set up, and observed regular channels of distribution. He made the point that manufacturers can and should get the support of association members.

Politics in Business

Walter J. Kohler, Jr., secretary of the Kohler Co., discussed politics in business and the relation and effect of such politics on the boiler and radiator business. He said that the effects of the Miller-Tydings Bill and the Robinson-Patman Act on general business are still open to question. He stated that prices are today at low ebb, that indications point toward a stabilization of future prices, and that he does not look for any weaknesses in the boiler and radiator industry.

Mr. Kohler said that it is now of paramount importance for the jobber to decide whether he wants to enter definitely into the sale of boiler-burner units, both oil and stoker. Unless unfavorable economic conditions prevail and labor disturbances continue, said he, everyone can look upon future business in the boiler and radiator market with optimistic view.

Herman W. Steinkraus, vice president in charge of sales, Bridgeport Brass Co., counseled a calmer view on general conditions today. If we will all take a calmer prospectus of business, said he, pay less attention to the general happenings of every day, pay stricter attention to our own businesses, get the true facts and then mold our policies to harmonize with this calmer prospectus—then we will find a better and more pleasant atmosphere in which to carry through our business.

R. L. Stewart, vice president of Stockham Pipe and Fittings Co. and chairman of Standard Producers Committee for distribution of cast iron and malleable iron fittings, said that statistics compiled by his committee showed that in the first six months of this year manufacturers were producing at average capacity. At present their sales are 60 per cent below normal capacity, but inventories are in excellent condition and future changes are dependent on future sales. Cast iron and malleable iron fittings are still distributed almost entirely through wholesale channels, it was pointed out.

Price Structure Strong

Speaking not for the steel pipe industry as a whole, but only from his own personal views and those of his company, D. C. Roscoe, manager of sales of Bethlehem Steel Co., discussed prices. Rumors about shattered price structure are not true, he said. The resale price structure is strong and in good condition; some markets on steel pipe are ridiculously low, but no facts have been shown to indicate that steel pipe manufacturers have cut the discount in these markets.

W. S. Shiffer, general manager of sales, Reading Iron Co., advised that the rights of the consumer must be protected in a sales policy. He stated his view that unless the will to do is paramount among all concerned, no one will benefit, regardless of laws and regulations.

Statistics on the consumption of soil pipe and fittings over a ten year period were discussed by W. A. Brecht, president of the Hajoca Corp. He also discussed the activities of the soil pipe and fittings committee, and said that it has been successful in getting all pipe and fittings properly marked with standards. What the future market will be is anyone's guess, but he stated his belief that New England—always a good market—should be kept that way through every possible effort.

A. M. Maddock, vice president of Standard Sanitary Mfg. Co., remarked that the remodeling market has comprised 60 per cent of his company's business. His other statements were: that present day prices are quite reasonable and, unless bad business and labor disturbances prevail, prices should go upwards; that the only successful policy in the industry has proven to be from manufacturer to wholesaler to plumber. Particularly timely was Mr. Maddock's statement that any manufacturer in the pottery business who depends on department store and mail order business will soon go out of business. The plumber, he pointed out, buys many items of various types, assembles them all and installs a complete job. If his own company were to sell mail order or department stores, he said, the consumer would pay 25 to 50 per cent more than he does when buying through established channels.

Mr. Maddock described two types of d.t.u.'s, one springing from plumbers and the other from hardware stores, department stores, etc. The first group he is in sympathy with, but unless the plumber is financially strong he soon fails. The seriousness lies in the fact

Pictures taken at the New England Wholesalers meeting at Poland Spring, Maine. 1. Walter J. Kohler, Jr., Kohler Co.; Wm. F. Bennett, Jr., Ideal Supply Co.; 2. Sam Graeff, Standard Sanitary Mfg. Co.; John Patrick, Blodgett Supply Co.; 3. Dan McNeil, Wheeling Steel Co.; Tom Bennett, Bennett Co.; Henry Noe, Central Foundry Co.; 4. William Decker, Bridgeport Brass Co.; Herman W. Steinkraus, Bridgeport Brass Co.; 5. Robert McKeown, Palmer Mullen Co.; Jim Carr, Union Metal Works; 6. Ray Sullivan, R. C. Sullivan Co.; Stanley Cady, General Fittings Co.; 7. Mr. and Mrs. William Pinkham, M. I. Fittings Co.; 8. Mr. and Mrs. William Thompson, J. B. Wise Co.; 9. William Strickland, Wheeling Steel Co., D. C. Roscoe, Bethlehem Steel Co.

that in some cases the plumber who operates as a wholesaler and who buys direct in quantities often sells his fellow plumbers. The success or failure of this type depends upon the price structure of wholesalers.

The second group depends upon the plumber to assemble and install, remarked Mr. Maddock. Unless this so-called wholesaler group gets the support of the plumber, he ceases to survive. The manufacturer has a definite obligation to wholesalers, it was pointed out; he should try to make prices compete with the prices of inferior grades. Mr. Maddock felt that, inasmuch as the wholesale price structure depends on the success or failure of these two types of wholesalers, it is hopeless for the manufacturer to distribute through wholesale channels unless the wholesaler can operate on a 25 per cent margin and the plumbers on a 33⅓ per cent margin.

Dr. Willard L. Thorp, Dun & Bradstreet, discussed recent legislation and its effect on business and prices. He traced the history of this legislation from the Sherman Act, which originally prohibited established resale—followed by the Tydings-Miller bill—which automatically removed the Federal opposition to price fixing and allowed the states to regulate resale price—to the regulations of the Robinson-Patman Act. In New England it is going to be difficult to maintain resale in interstate and out-of-state commerce without legal staff. He felt that there are so many interpretations of what the laws under the Robinson-Patman Act mean that it is anyone's guess what might eventually develop.

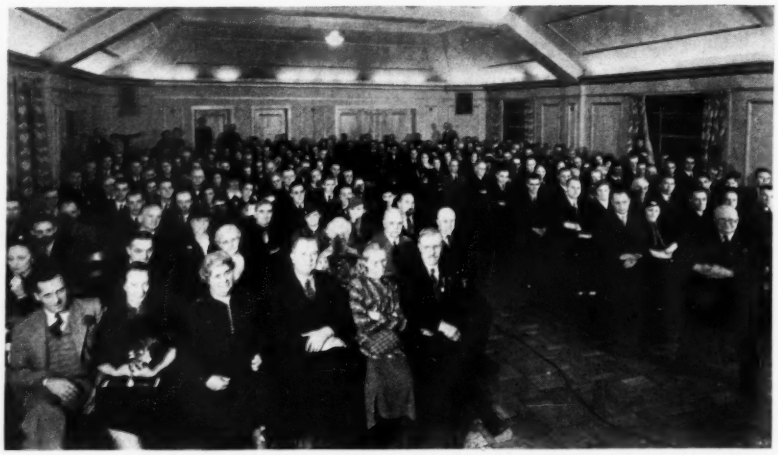
Trane Meetings

The opening of the heating season was observed recently by The Trane Co., La Crosse, Wis., with a series of four sales meetings in Chicago, Cleveland, Washington and Newark, N. J. The home office was represented by D. C. Minard, vice president, and Norbert Downey, unit heater manager.

These gatherings were intended to bring together the field men and acquaint them with company developments. Particular emphasis was placed on new products introduced this season. The daytime meetings were largely devoted to discussions of the engineering and application phases of the manufacturer's products.

Change in Name

Leonard-Rooke Company, Providence, R. I., has changed its name to Leonard Valve Company. There has been no change in directors or personnel.



Present at a Johns-Manville and Leighton Supply Co. meeting at Fort Dodge, Iowa

J-M Meetings

Johns-Manville Corp. was host to 250 plumbing and heating dealers and their wives from Northwest Iowa at a dinner and meeting in Fort Dodge, October 19. The dinner and program was arranged by the Leighton Supply Co., Fort Dodge.

A feature of the program was a sound picture produced by Johns-Manville Corp. titled "Heat and Its Control." The theme of the picture, which is accompanied by an explanation of how insulation products are manufactured and used, is that heat is not only the most powerful force of nature but also the most natural force of destruction known to man. Yet, when controlled, it runs the world.

A three reel sport picture concluded the meeting.

Both of these motion pictures were shown at a meeting of plumbing and heating contractor-dealers of Cincinnati and vicinity on the evening of October 21 at the Hartwell Country Club, Cincinnati, Ohio.

Briggs' Expansion

The purchase of 74 acres of land as part of $3,000,000 development by the Briggs Manufacturing Co. has been announced by Walter O. Briggs, chairman of the board, and reported by the *Detroit Free Press*. Work is to start at once on a new building.

The company had previously purchased a 17-acre site on which to provide expansion of the present Mack Ave. activities and to consolidate all engineering activities in a new building to be erected. With the acquisition of these properties the company expects to have adequate room, among other types of expansion, for the future increased development of its plumbing ware division.

Welding Award

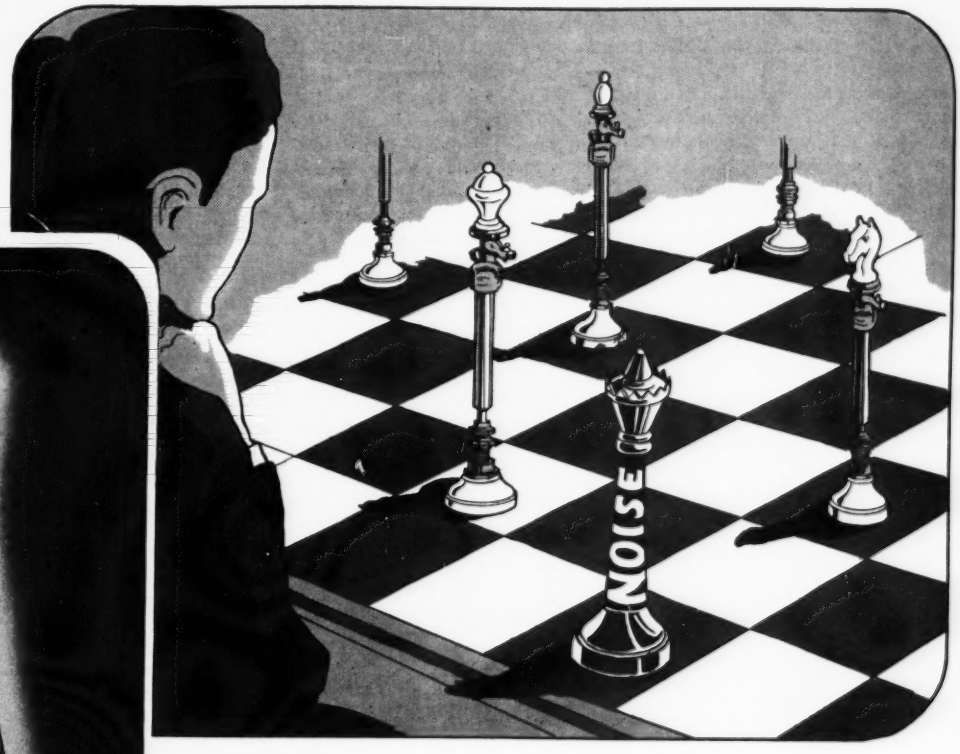
The Samuel Wylie Miller Medal, an annual award of the American Welding Society presented for meritorious contributions to the science and art of welding, has been awarded to H. Sidney Smith. The award was established in 1927 by the late Samuel Wylie Miller, himself an outstanding figure in the development of welding since its inception. For a great many years, and until the time of Mr. S. W. Miller's death, Mr. Smith and Mr. Miller—whose memory is commemorated by the Miller Medal—were closely associated in their technical, business and engineering society activities. Each of these men contributed greatly to the efforts of the other and their complementary thinking on many subjects resulted in real progress for the oxy-acetylene industry.

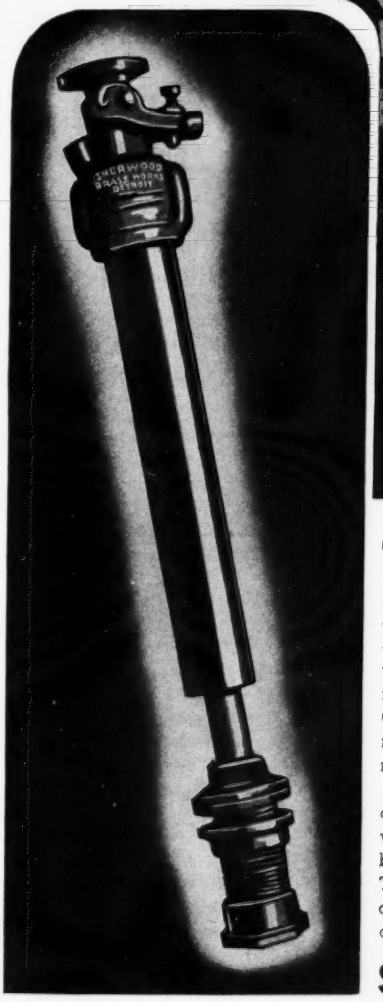
Well-known in the acetylene industry both in America and abroad, H. Sidney Smith has served as president of both the British Acetylene Assn. and the International Acetylene Assn. and has been directly responsible for many important developments in acetylene utilization.

In his long and active career with Union Carbide Company and its associated companies he has made many important contributions to the oxy-acetylene industry, and has been the author of innumerable technical articles on the uses of oxygen, acetylene, calcium carbide and oxy-acetylene apparatus. One of the first instruction manuals in oxy-acetylene welding and cutting was written by Mr. Smith and he has been active in the technical training of many men who are now taking leading parts in the engineering aspects of the industry.

Mr. Smith was elected president of the International Acetylene Assn. in 1920 and he was elected president of the Compressed Gas Manufacturers Assn. in 1928.

SHERWOODS *checkmate* NOISE!





Pictured above is the SHERWOOD No. 77 Ball Cock. A decidedly BETTER product which affords the plumbing contractor a more substantial margin of profit on each bathroom job. The hush tube, featured in this ball cock, has introduced genuine quietness into the American bathroom.

THERE is nothing quite so annoying and nerve-wracking as unnecessary noise! The constant drip, drip, gurgle, gurgle of a leaky ball cock is just that —**unnecessary noise!** But it's noise that you, as a plumbing contractor, can readily eliminate with SHERWOOD Ball Cocks. SHERWOOD Ball Cocks permanently checkmate that nerve-wracking noise so common in many bathrooms.

When you sell SHERWOODS you sell customer satisfaction! Your reputation will gain prestige when you "cure" the bathroom of its most "common ailment." This customer satisfaction will pay big dividends. . . . In addition to paying you a good profit SHERWOOD Ball Cocks will open new selling opportunities for other plumbing and heating equipment.

There are hundreds of leaky, noisy ball cocks in your community. Call on these prospects . . . demonstrate the advantages of SHERWOOD Ball Cocks . . . you'll find them amazingly easy to sell because SHERWOODS are made in a variety of styles with prices ranging to meet the requirements of every class of customer. Besides being extremely quiet in operation all types close against any city water pressure.

If you do not have SHERWOOD Ball Cocks in your display room, order a supply from your jobber today. Take advantage of SHERWOODS many advantages!

SHERWOOD BRASS WORKS 6331 E. JEFFERSON AVE. DETROIT, MICHIGAN

REPRESENTATIVES: James A. Riordan Co., Inc., 1600 E. 7th St., Los Angeles, 955 Bryant St., San Francisco, 1248 First Ave. S., Seattle; E. S. Thompson, 2222 Chestnut St., Philadelphia; Fred S. Wilsey, Plymouth Bldg., Minneapolis; A. Mitchell, Jr., 249 Central Ave., Albany, N. Y.; M. L. Sampliner, 1705 Glenmont Rd., Cleveland; Feeney & Gallagher, 402 E. 14th St., Kansas City, Mo.; Fred'k G. Hoffmann, 831 Edgewood Ave., Trenton, N. J.

SHERWOOD Ball Cocks

Welding Convention

The thirty-eighth annual convention of the International Acetylene Assn. will be held in Birmingham, Ala., November 10, 11 and 12, with headquarters in the Tutwiler Hotel.

One of the features of the program will be the round table discussions on November 10 and 11. The engineering session, with J. I. Banash, consulting engineer as chairman, is for those who are concerned with the planning and supervising of welding and cutting operations. Open discussion of economics, management and design relating to welding and cutting is invited.

The operating session, under the chairmanship of W. S. Hays, managing director of the American Welding Society, is of interest to shop owners, welding and cutting operators, foremen, supervisors and others planning, managing and performing welding and cutting operations. Scheduled subjects will be treated from the practical angle in every case.

Some of the technical papers of interest to our industry are "Piping Design, Fabrication and Erection," by O. B. McLaughlin; "Multi-Lengthening Cast Iron Pipe by Welding," by C. L. Lane, works manager of Walworth Co., Attalla, Ala.; "Bronze-Welding of Cast Iron Pipe," by Dr. J. T. MacKenzie, metallurgist for American Cast Iron Pipe Co., Birmingham, Ala.

Morehead Medal

At the opening luncheon on November 10, the Morehead Medal will be presented by C. O. Epperson, vice president of National Cylinder Gas Co., Chicago. This medal was established in 1922 by John Motley Morehead in honor of his father, the late James Turner Morehead, who in 1892 sponsored the experiments which led to the discovery of the electric furnace method of producing calcium carbide. The Morehead Medal is awarded annually by the International Acetylene Assn. to the person or persons who in the judgment of its officers and board of directors have done most to advance the industry or the art of producing or utilizing calcium carbide or its derivatives.

Dr. James Shelby Thomas, president of Chrysler Institute of Technology, will deliver the keynote address, titled "New Frontiers for Smart People." Other addresses will be given by J. L. Perry, president of Tennessee Coal, Iron and Railroad Co., and C. D'W. Gibson, president of the association.

Prior to the convention, suite 322, Tutwiler Hotel, will be the official convention headquarters. George B. Moynahan, secretary of the publicity, program and arrangements committee, may be reached for information at that address.

A.S.H.V.E. Exposition

Winter heating of homes, public buildings, and factories, and air-conditioning on a year 'round basis are themes which will be coordinated and amplified at the fifth International Heating and Ventilating Exposition to be held at Grand Central Palace, New York City, January 24 to 28. It will be under the auspices of the American Society of Heating and Ventilating Engineers, whose 44th annual meeting will be held during this same week in New York. Three floors of the Palace have been engaged and most of the space is already under contract to exhibitors. Advance indications are that the exposition will be a success in terms of exhibits, exhibitors, and attendance.

Porcelain Enamel

Expanded advertising, promotional and research activities were outlined at the annual meeting of Porcelain Enamel Institute, held at Chicago October 11 and 12.

Officers elected for the coming year are: F. E. Hodek, Jr., president; H. D. Chase, vice president in charge of advertising and promotion; Richard H. Turk, vice president in charge of research; Wm. Hogensen, reelected treasurer; George P. MacKnight, managing director, reelected secretary.

At Ohio State University in Columbus, Ohio, October 13, 14 and 15, more than 230 assembled for the second Porcelain Enamel Institute forum. Officers of the university welcomed the group, and F. E. Hodeck, Jr., responded.

R. G. Creviston

Community Fund

Plumbing and heating is playing an important part in Chicago's Community Fund drive this year. Russell G. Creviston, director of advertising and sales promotion for Crane Co., Chicago, has organized the local industry's effort to make the quota.

"I find it a source of satisfaction to see the way in which the industry is accepting the responsibility of meeting its quota," said he. "Close to 9,000 members of the industry are cooperating and are helping put the campaign over."

List of Captains

Following is a list of Mr. Creviston's captains; J. P. Baldwin, of J. P. Baldwin Co.; Ray Berry, vice president, Gallaher & Speck; Deane Bowron, Kewanee Boiler Co.; P. J. Brown, P. J. Brown Plumbing Co.; Thomas Brown, vice president, Autovent Fan & Blower Co.; John J. Calnan, president, John J. Calnan Co.; Leo Corboy, president, M. J. Corboy & Co.; Russell Doherty, district manager, National Radiator Co.; W. J. Donnelly, Kohler Co.; John T. Dorsey, John T. Dorsey and Sons; Dodge Freeman, American Radiator Co.; Chas. E. Gawne, president of Illinois Master Plumbers Assn.; Roy M. Getschow, president, Philip-Getschow Co.; Thomas H. Green, branch manager, Williams Oil-O-Matic Heating Co.

I. Greenberg, president, United Plumbing & Heating Co.; Samuel L. Haas, president, Advance Heating Co.; T. F. Hanley, Jr., president, Hanley & Co.; Harry M. Hart, president, L. H. Prentice Co.; Geo. Hill, Geo. Hill Co.; James W. Holt, J. W. Holt Plumbing Co.; W. F. Howe, Kewanee Boiler Corp.; Wm. A. Kuechenberg, president, R. B. Hayward Company; Walter C. Leitch, district manager, Gilbert & Barker Mfg. Co.; Doyle Malone, Petroleum Heat & Power Co.; H. Mathis, vice-president, New York Blower Co.; Walter F. Meagher, president, ABC Oil Burner Sales & Service Co.; O. K. Moore, vice president and treasurer, Automatic Oil Heating Co.

Peter Munn, secretary, Plumbing Contractors Association; Robt. E. Murphy; J. H. O'Brien, division sales manager, American Blower Corp.; S. Austin Pope, president, William A. Pope Co.; W. H. Rietz, vice president, Ilg Electric Ventilating Co.; James Riordan, Riordan Plumbing Co.; H. B. Roney, American Radiator Company; Chas. J. Stanley, president, J. J. Stanley Co.; Julius Vogt, Standard Sheet Metal Co.; Jacob M. Weil, general sales manager, Weil-McLain Co.; T. P. West, Brunswick-Balke-Collender Co.; D. S. Whamond, president, Arrow Oil Burner Co.; H. J. Wrath, secretary, Chicago Credit Bureau; H. C. Yelton, president, Inland Supply Co.

Chicago Branch

A new branch office has just been opened in Chicago by General Controls Co., San Francisco, Calif. The new office is managed by H. G. Wasserlein.

Smoke Survey

Thirty-five employes of the Works Progress Administration have recently completed a survey of St. Louis City Assessor's records to show the number and classification of buildings equipped with heating appliances. This information has been assembled for the guidance of city officials to enforce a new smoke ordinance, recently passed.

Actual enforcement of the new ordinance awaits the appointment of a smoke commissioner by St. Louis city authorities. When such appointment is made, the new commissioner will find that the report material throws an important light on what has to be done to set up the proper enforcement procedure. So that data collected will be ready at an instant's notice for his use, it is being turned over to the Director of Public Safety, whose department will have general supervision in enforcing the new ordinance.

The survey shows a total of 134,029 buildings in the city equipped with some type of heating appliance. They are classified in the report.

Petroleum Meeting

Contributions of industrial research to the economic welfare of the United States will be the feature subject of discussion at the eighteenth annual meeting of the American Petroleum Institute, to be held November 8 to 12 in the Stevens Hotel, Chicago.

Advance reservations indicate that more than 2,000 will hear addresses by Charles F. Kettering, vice president of General Motors Corp., Dr. H. E. Howe, editor of Industrial and Engineering Chemistry, and Wesley E. Disney, U. S. Representative from Oklahoma.

Home Contests

General Electric Co., Schenectady, N. Y., has sponsored two contests which will in the next year and a half distribute $60,000 in awards. Both contests are aimed to influence better built homes and better living in homes already built. The basis for both contests are letters on the subject of homes.

Factors in one of the contests are location and architecture, sound construction and skilled labor, quality materials and equipment, landscaping and interior decorating, sound financing, new materials, insulation and sound deadening, sanitation and plumbing and electrification. The contests have been designed to encourage those who plan to build or modernize to take advantage of up-to-date knowledge and equipment.

The second contest is educational in nature.

Sales Cruise

The Raub Supply Co., Lancaster, Harrisburg and Wilkes-Barre, Pa., held their annual sales cruise recently, sailing from Baltimore, Md., to Norfolk, Va., and return.

A general sales meeting was conducted on the ship during the second day of the cruise. The speakers included various department heads who spoke on products stressing particular sales points. The day was featured by addresses from various officers of the Company including one from the president of the company, W. S. Raub, on "Personal Loyalty." The biggest year in the history of the company was predicted by G. H. Hartman, vice president and general sales manager.

Plant Improvements

Young Radiator Company has announced a number of changes of importance in its manufacturing facilities and a program of refurbishing machinery.

Several new departments, handling a large battery of press brakes, shearing equipment, electric welders and other machinery for welding and machining, have also been established. The company has increased its floor space to almost double its former occupancy. The machine shop and sheet metal shop are now entirely self-contained and separate from the other activities.

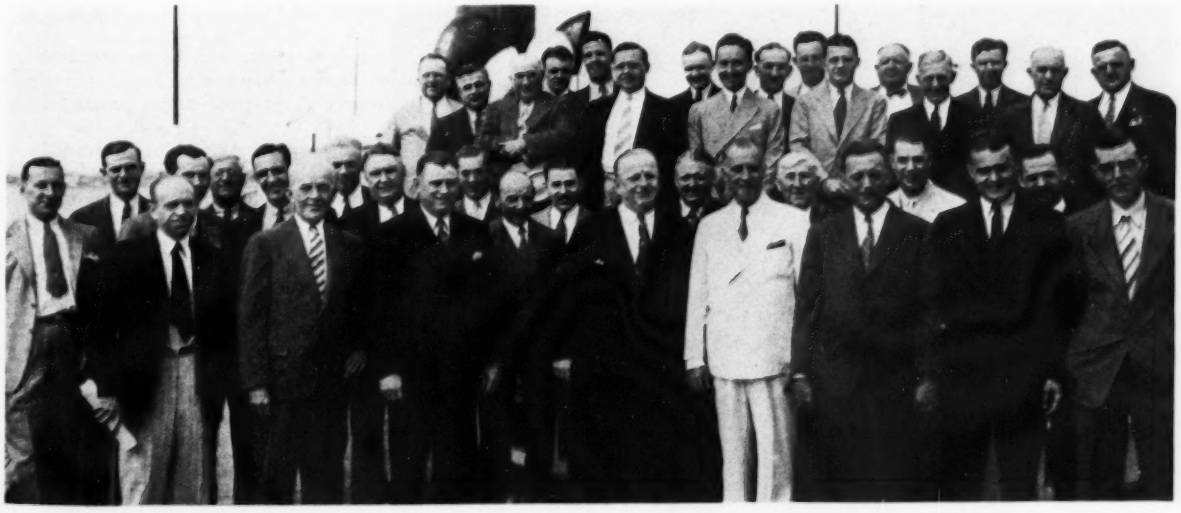
Penn Electric Moves

Penn Electric Switch Co. has just announced that entire production facilities for manufacturing oil burner, stoker, gas heating, refrigeration and air conditioning controls are now located in the company's new factory at Goshen, Indiana.

Penn Electric early in July announced the move of all executive offices, all research and development activities and a portion of its manufacturing to the new location. Pump and air compressor controls will continue to be manufactured at the company's factory in Des Moines, Iowa, until early next year.

Sadler Resigns

Prof. Herbert Charles Sadler, dean of the college of Engineering of the University of Michigan, has resigned following a six-months leave of absence. His connection with the faculty will continue, however, as he has been appointed Alexander Ziwet professor of engineering, an honorary position.



Group which participated recently in Raub Supply Co. annual sales cruise from Baltimore, Md., to Norfolk, Va., and return

New Distributors

Sales Representatives, Appointments

Link-Belt Company, Chicago, has announced the election of two vice presidents—William C. Carter and Edward J. Burnell. Both have been long associated with the company.

Julien P. Friez & Sons, Inc., Baltimore, Md., have announced the opening of new showrooms at 110 Arlington St., Boston, Mass. The branch operates under the name of Air Conditioning Utilities Co., and is managed by Harry W. Fiedler.

Pittsburg Water Heater Co., Pittsburgh, Pa., has announced the appointment of V. W. Borntraeger as Chicago distributor.

The Insulite Co., Minneapolis, Minn., has announced the election of E. H. Batchelder, Jr. to the position of senior vice president. E. W. Morrill has been named to head the national sales department as general sales manager.

Van Osdol Manufacturing Co., Indianapolis, Ind., has announced the following distributors: J. G. Gregory & Co., 932 Builders Bldg., Chicago, for Wisconsin, Iowa, Illinois, northwestern Indiana and western Michigan; A. D. Porter Co., 1836 Euclid St., Cleveland, Ohio, for northern Ohio; Henry C. Johnson, Rochester, N. Y., for western New York State; Perkins & Colter Co., Cambridge, Mass., for New England; Alfred W. Buschmann (Verla Sales Co.) 208 E. St. Clair St., Indianapolis, Ind., for Indiana.

The Kennedy Valve Manufacturing Company, Elmira, N. Y., has announced the appointment of Fred C. Greaves as its representative to cover Oregon and Washington. His office is at 401 Polson Bldg., Seattle, Wash.

Personals

Charles G. Singleton, for sixteen years manager of the Dallas branch of N. O. Nelson Manufacturing Co., has been promoted to national manager of sales. His new headquarters are St. Louis, Mo.

J. F. May, sales manager of the catalog products division of Young Radiator Co., Racine, Wis., has been appointed vice president. The announcement was made by Pres. F. M. Young.

Roy Nelson has been appointed Chicago branch manager of the heating division of Fedders Manufacturing Co.

A. I. Wallace, associated with the company for ten years, has been appointed vice president of American Gas Products Corp. Pres. W. T. Rasch made the announcement.

Business Changes and New Incorporations

United States Radiator Corporation, Detroit, Mich., has announced the new Capitolaire Division of the corporation. William A. Russell, who has managed several of the Western branches of the company, most recently Kansas City, is to assume direction of this new air conditioning division and will also continue to take active interest in general sales work.

Wolverine Tube Co., Detroit, Mich., has made plans to erect a $6,500 warehouse and showroom in Dallas, Texas, the Dallas *Morning Star* reports. The structure will adjoin a similar type of building.

National Supply Co. stockholders have approved a plan whereby the company will merge with Spang Chalfant and Co. into a new Pennsylvania corporation to be known as National Supply Co., the *Pittsburgh Press* reports.

Write us for the names of Pipe Nipple Manufacturers near you who are qualified to use this "Seal of Tested Quality."

Nipple weakness

IS NOT DUE TO AGE... IT IS A SPECIFICATION OVERSIGHT

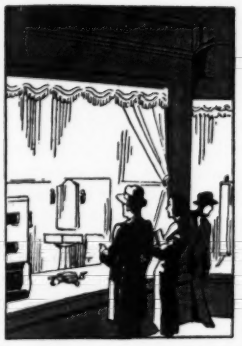
Pipe nipple weakness, with all its attendant troubles, *begins when you write your specifications* . . . unless a simple precaution is taken.

To be certain-sure that your pipe nipples will *not* be made of secondhand pipe of doubtful strength, specify *Pipe Nipples made only from new, full-weight* mill-tested pipe—or easier still, deal with your nearest N.A.P.N.M. Member!

Write for a copy of this folder! It tells the story of manufacturers who are bound to supply you with the best.

NATIONAL ASSOCIATION OF PIPE NIPPLE MANUFACTURERS

CLARK BUILDING . . . . . PITTSBURGH, PENNA.



Trade

News of . . . Men . . . Associations . . . Events . . .

N.A.M.P. Exposition

- *Home Comfort Exposition to surpass 1937 show in Atlantic City—69 per cent of available booth space already under reservation*

N.A.M.P. Pres. L. J. Kruse recently announced the 1938 Home Comfort Exposition and the 56th Annual Convention of the National Association of Master Plumbers. Both events will be held in the Cleveland Public Auditorium, Ceveland, Ohio, June 6-7-8-9, 1938.

Although the exposition floor plan and prospectus has been out a very short time, and the opening date of the show is still seven months in the future, a large number of manufacturers in the plumbing and heating industries have reserved exhibit space.. On October 21, 1937, over 69 per cent of the available booth space was under reservation.

It is evident that the 1938 Home Comfort Exposition will surpass the 1937 Exposition, held in Atlantic City, both in size and number of exhibits. The interest evidenced by space reservations so far in advance indicates that manufacturers believe Cleveland to be an advantageous location for the 1938 N.A.M.P. Convention and Exposition.

Wide Representation

Cleveland is a city of homes, and with a population of 900,000 a large and interested consumer attendance is anticipated. Its central location, within a 500 mile radius of over one-half of the nation's population, assures a greater than usual attendance by master plumbers and heating contractors. All of these people will be interested in the displays of the various manufacturers of plumbing and heating materials who will maintain exhibits.

Even at this early date, nearly every type of material and appliance used in the plumbing and heating industries is included in the exhibits to be set up by the manufacturers who have thus far made space reservations. There is no doubt that space in the show will be at a premium in the near future. A broad publicity program has been planned to interest consumers in the exposition.

For the first time in an exposition sponsored by the N.A.M.P., restricted hours for consumer attendance have been arranged. The show will be open to members of the trade from 9 a. m. to 4 p. m. each day. The general public will be admitted between 4 p. m. and 10 p. m., the closing hour of the show each day. This arrangement will permit exhibitors to discuss their products and matters of trade interest with their plumbing and heating contractor customers, without interruption.

Following is a list of the companies who have reserved exhibit space.

American Brass Co., American Radiator Co., American Rolling Mill Co., Armstrong Manufacturing Co., Beaver Pipe Tools, Inc., Blue Seal Chemical Co., Norman Boosey Mfg. Co., Briggs Manufacturing Co., Chase Brass and Copper Co., A. D. Cook, Inc., Crane Company, Domestic Engineering Co., Duriron Company, Fretz-Moon Tube Co., General Electric Co., Hotstream Heater Co., Imperial Brass Mfg. Co., Johns-Manville Corp., Josam Manufacturing Co., Kohler Company, F. H. Lawson Co., Lead Industries Assn., Mueller Brass Co., Mueller Co., Nye Tool and Machine Works, Northern Indiana Brass Co., Oster Manufacturing Co., Phelps Dodge Copper Products Corp., Pittsburg Water Heater Co., Radiator Specialty Co., Republic Steel Corp., Revere Copper and Brass, Inc., Ridge Tool Co., Ruud Manufacturing Co., Scovill Manufacturing Co., Sloan Valve Co., Standard Sanitary Mfg. Co., Toledo Pipe Threading Machine Co., United States Steel Corp., Warren Webster Co., Weil McLain Co., Wheeling Steel Corp., Whitehead Metal Products Co., Wolverine Brass Works, John Wood Manufacturing Co., Woodward Wanger Co., "X" Laboratories, Youngstown Sheet and Tube Co.

Downtown Cleveland, N.A.M.P. Convention city

Coast Inspectors

• *Public health and means for eliminating handy men are most discussed subjects at Pacific Coast Plumbing Inspectors' meeting—Largest attendance on record*

With the largest attendance on record and a membership roll embracing the eleven Far Western states and Canada, the Pacific Coast Plumbing Inspectors Assn. met for their eighth annual convention in San Diego, Calif., October 14, 15, 16. This was the first three-day gathering ever held by the inspectors; and because of an extra heavy program, President Winkler called an extra session on the evening of October 15.

Resolutions passed provided that: (1) legislation should be enacted that plumbing fixtures installed in all public places be operated by means other than hand controls; (2) the standard plumbing code be amended to exclude the use of vitrified tile sewer pipe drains, except in certain industrial plants; (3) continuing steps be taken toward holding a proposed plumbing congress in Los Angeles in 1939, with nationwide participation. The association also adopted without reservation the newly formulated uniform gas code, as a suggested standard code for adoption by Pacific States municipalities.

National Plumbing Congress

Of the proposed national plumbing congress, Secretary Smoot, who first stirred interest in the move, said: "The purpose of the congress is to call in every group interested in sanitation—and this includes manufacturers, wholesalers, master plumbers, representatives of city health departments, plumbing inspectors and manufacturers' agents—for discussing all questions of mutual interest concerning plumbing fixtures, their installation and inspection. Assurance has already been given me that we will have representatives from all over this country and from abroad. Aside from general discussions, papers will be read by recognized authorities, bearing on subjects covering practically every phase of the industry."

Newly elected officers are: president, George Grimshaw of Berkeley; vice president, northern division, E. A. Court of Sacramento; vice president, southern division, Ed. Beale of San Diego; secretary, Stephen I. Smoot of Los Angeles; chairman, research committee, Gustav Wiemer of Los Angeles. Executive committeemen for the northern division are: J. D. Finnigan, G. W. Genuit, L. Hendsch and G. R. Hilliker. Southern Division committeemen are E. R. Longley, J. T. Curley, J. B. Davis, W. L. Hallberg and E. C. Westbrook of San Bernardino.

On the opening day, Loy Johnston of Glendale, vice president of the California State Master Plumbers Assn., summed up his remarks dealing with the work of the inspectors' group, as follows: "I believe your association has a job to perform in sponsoring adequate laws for the protection of the health of the public. I believe, too, that you can do it better than we can. We have been accused of having selfish motives; but no such excuse can be laid at your door."

Epidemics Traced

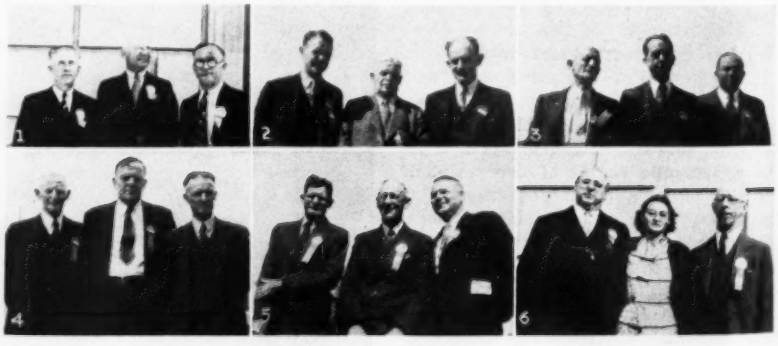
Speaking on the necessity for examination and qualification of plumbers, Edward R. Longley, chief of the Division of Plumbing of the City of Los Angeles, pointed out that only in recent years has it come to public attention that "faulty plumbing and improper devices have resulted in epidemics of disease, loss of life and destruction of property. There are ordinances and laws, and a disposition on the part of those familiar with them to cooperate, yet on every hand there are exceptions where plumbing work endangers the health and safety of the public. This is oftentimes traceable to mercenary motives, or possibly to ignorance or carelessness; but the worst kind of work is that performed by the man who represents himself to be a plumber, but who actually is unfit and unqualified.

"Before they are allowed to practice, the doctor and the dentist are obliged to undergo a strict examination bearing on their fitness. Why, then, should we not be as strict with the prospective plumber?"

High lighting the talk by Dr. Alex M. Lesem, director of public health, City of San Diego, was the comparison drawn between typhoid and typhus fevers, the latter being spread by animals. "Every plumbing inspector should understand the elements of sanitary engineering," said he. "This is especially applicable in the rural districts. The successful disposal of wastes should also be studied with a view to complete mastery of the subject."

Wm. D. Hobro, retired chief of plumbing, drainage and gas inspection, City of San Francisco, commissioned by the president of the American Society of Sanitary Engineering to represent the society at the convention, said in part: "I believe a plumbing inspector should study continuously, because we must remember that the qualifications of a plumbing inspector are based on what he knows." He deplored the activities of unethical persons who work with the wrecking house and the d.t.u., adding that the difficulties of the plumbing inspector are vastly increased thereby. Among those subjects named worthy of study by the alert inspector was that concerning the transmission of disease by certain of the insects and rodents.

Clyde Hickman, board member of the California Master Plumbers Assn. and chairman of its committee on the state plumbing law, spoke of the menace of the handy man. "His influence is felt in every community," he said, "in hotels, apartments and office buildings where there is no inspection, and the work is done according to his own limited knowledge and experience. . . . "We master plumbers believe you are the key men who will give us the help we need to combat this menace."



Pictures taken at the meeting of the Pacific Coast Master Plumbers Assn. at San Diego. 1. Clyde Hickman, board member of California State Master Plumbers Assn.; George Grimshaw, newly elected president of the inspectors organization; P. J. Scanlan; 2. S. I. Smoot, William D. Hobro, J. M. Winkler; 3. A. A. Bennett, E. R. Longley, Gordon L. Taylor; 4. P. H. Haddan, Loy Johnston, Wm. P. Hill; 5. J. F. Hightower, Fred Johnson, Ed Beale; 6. J. D. Finnigan, Miss Josephine Finnigan, Arthur J. Farrell

Connecticut Golf

The Connecticut Plumbing & Heating Contractors' Golf Assn. held its final meet of the season at Waterbury Country Club, Waterbury, Conn. on Wednesday, October 13. At this meeting the following new officers were elected: president, Howard Evans of Plumbers Supply Co., New Haven; first vice-president, Frank Daly, plumbing and heating contractor of Greenwich, Conn.; second vice-president, Morris Blackwell of Wolverine Brass Co.; secretary and treasurer, Wm. D. Pinkham of Malleable-Iron Fittings Co. (re-elected). W. Williams of C. S. Mersick Co. will continue as team captain and handicapper for the coming year.

Some of the scores follow:

E. J. Daley	84	13	71
J. Johnson	85	10	75
Williams	82	6	76
J. Rowe	103	10	93
Frank Daley	80	3	77
T. Mazza	87	9	78
R. Scoville	91	12	79
J. R. Burns	92	13	79
N. J. McGuire	87	7	80
J. McCarthy	94	14	80
T. J. Miller	102	22	80
Leo Graves	94	13	81
R. Douglas	95	14	81
T. E. Doyle	97	16	81
H. Ifland	91	9	82
R. Patterson	100	18	82
R. Surey	102	20	82
M. Blackwell	90	7	83
W. Pinkham	101	18	83

Football Party

A number of Chicago master plumbers and their wives were the guests of Bastian-Morley Co., Inc., LaPorte, Ind., on the occasion of the Navy-Notre Dame football game at South Bend. Visiting the company's plant, they were shown the processes in the manufacture of gas water heaters by George W. Wood, Murray B. Wright, J. P. Hutchinson, Stanley Hague and Sales Manager J. F. Donnelly.

At South Bend luncheon was served to 40 guests in the home of W. R. Feltes, vice-president. Jim Morley, president of the company, distributed the football tickets to the guests. Refreshments were served after the game.

Included in the party from Chicago were Mr. and Mrs. Leo J. Corboy, Mr. and Mrs. William J. Lang, Mr. and Mrs. William M. Woolley, Henry P. Reger, William F. Hildeman, Peter M. Munn, Ray Thompson, of Hanley and Co., Warren Barr, of Crane Co., C. H. Light, of Peoples Gas Light and Coke Co. and Murray B. Wright.

New Association

The Berkeley and Albany Master Plumbers Assn. has been chartered in Berkeley, Calif. L. B. Hull, A. I. Baker, W. A. Bohan and A. M. Rich are directors.

New Jersey Golf

The October meet of the Plumbing and Heating Trades Golf Assn. was held at the North Jersey Country Club, Paterson, N. J., on October 14. F. A. McBride was host for the day.

In the morning nine-hole kickers handicap J. Geiss won first prize and D. Snyder second. Afternoon winners were D. Snyder, 74; C. Haas, 75; F. Robinson, 75; H. Lange, 76; F. Engelberger, 78; B. Relyea, 78. Guest prizes were awarded to W. Weilbacker and W. Fellmeth.

Some of the scores were:

Fred Engelberger	99	21	78
D. Snyder	92	18	74
W. Fellmeth	112	45	67
F. A. McBride	92	14	78
A. B. Cashman	100	18	82
A. Kratt	111	29	82
H. Relyea	111	33	78
J. Geiss	103	21	82
F. C. Stille	90	7	83
R. S. Page	106	38	68

Chicago Meeting

The Johanson Water Heater Co. and Kol-Master Corp. sponsored the October 6 meeting of the Chicago North and West Side Master Plumbers' Pleasure Club. A buffet luncheon was served to the 40 members attending. Al Grosch is president and Paul Hamer is chairman of the entertainment committee.

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Eastern Trade Golf

The October tournament of Eastern Trade Golf Assn. was held at the Montclair Golf Club, Montclair, N. J., on October 5. The association championship was won by John Kjerner, who beat C. M. Hunt 3 and 2. The Governors trophy was won by W. L. Keplinger, Jr. with a total of 295. The guest prize was won by R. D. Evans.

Other prize-winners and their scores follow:

R. W. Myer	82	14	68
C. H. Armstrong	81	9	72
F. C. Stille	80	7	73
J. F. Hyde	94	20	74
T. W. Powers	86	10	76
W. J. Osborn	91	15	76
H. Townsend	92	16	76
H. J. Rose	92	16	76
J. C. McDonald	95	19	76
L. Power	84	7	77
L. M. O'Neil	89	12	77
W. A. Davis	90	13	77
R. S. Bruns, Jr.	91	14	77
G. E. Olsen	99	22	77
W. G. Turno	103	26	77
F. L. Dodson	122	45	77

Other scores were:

C. S. Coleman	93	15	78
Thomas Irby	93	15	78
Ernest Williams	102	24	78
Rhys E. Ryan	95	16	79
A. P. Keasbey	95	14	81
W. J. Osborn	96	15	81
Al Engle	101	20	81
Max Hermanns	103	22	81
L. B. Harrison	111	30	81
C. M. Hunt	92	10	82
W. H. Murphy	97	15	82
A. F. Hinrichsen	100	18	82
M. F. Morris	100	18	82
C. S. Wood	105	23	82

Youngstown Tour

A group of 50 Chicago master steamfitters, plumbers and heating contractors, and a delegation of fifteen from Milwaukee, Wis., were guests of Youngstown Sheet and Tube Co. on an all-day tour of that company's Indiana Harbor plant October 14.

The group saw the manufacture of pipe from the time the iron ore is unloaded at the docks adjacent to the blast furnace to the final inspection of the finished pipe. At luncheon, H. E. Robinson, host for the day, introduced A. Kilander, vice president of the Chicago Master Steamfitters Assn., and Louis Schmaus, head of the Milwaukee delegation. Each spoke briefly, thanking the company for its hospitality.

Thomas C. Arndt assisted Mr. Robinson in the direction of the tour. G. H. Donley, chief of inspection, and E. L. Applegate, superintendent of the pipe mill, acted as guides and answered questions.

Among the visitors from Milwaukee were Herman Aien, George Toepfer, M. F. Linnan, Emil Henoch, Fred Schwantes, Ray Robertson, Eustace Faust, Edward Thill, Otto Waskow, Fred Kuetemeyer and Frank Anderson (Youngstown Milwaukee office).

The following were some of the Chicago and vicinity guests: Harry D. Allen, R. W. Bayles, W. R. Blayne, M. L. Buckley, E. J. Casey, John J. Collins, C. W. DeLand, Conrad Bruls, Menus Johnson, Thomas J. Killian, R. E. Kilby, J. S. Kearney, Robert Kilby, William B. Lucke, Paul H. Miller, N. P. Miller, H. F. Molloy, J. H. McCauley, R. S. Saunders, M. H. Schulhof, M. Sholtes, John O. Sutherin, W. J. Walsh and G. G. Weymouth.

Western Trades Golf

Sixty members and guests took part in the final golf meet of the season of the Western Trades Golf Assn. on October 14. In a championship play-off Bill Zagihen beat Dick Murphy. 1 up.

Pres. Elmer Rietz, following an evening dinner at the clubhouse, announced that the association had had a successful season with an average attendance between 30 and 70 at the six tournaments.

The Presidents' Cup was won by Howard Evans. Other winners of various events were Dwight Southern, L. J. Pitcher, Nils Swanson, E. M. MacDonald, Rupert J. Weber, C. F. Olson, J. Phillippi, Charles E. Price, Jack Kilby, J. C. Lathe, Horatio Jacob, Tom Horan, William J. Spillane and Peter M. Munn.

A nominating committee was appointed to select officers for the coming year.

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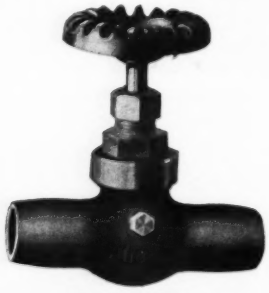

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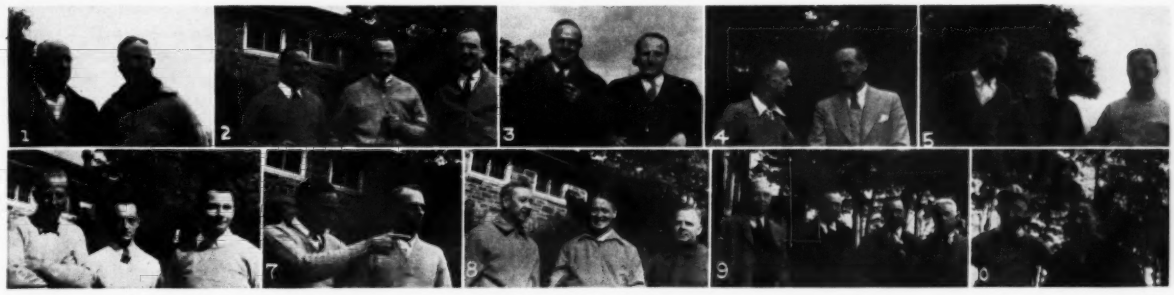


Taken at the tournament of the Delaware Valley Trades Golf Assn. given in honor of A. A. Tomlinson: 1. A. A. Tomlinson, W. B. Tomlinson, Tomlinson Co.; 2. Frank La Baw, Standard Tank-Seal Co.; Arthur H. Dufort, Central Tube Co., M. B. Squires, Central Tube Co.; 3. M. O. Pilger, Bridgeport Brass Co.; Benjamin Rogers, Tomlinson Co.; 4. Elwood Costa, Ballinger Co.; Chas. G. Wall, manufacturers' representative; 5. George Pearce, Phelps Dodge Corp.; R. Knight, manufacturers' representative; A. A. Ahlff, National Radiator Co.; 6. C. H. Miner, Tomlinson Co.; John Danbert, Russell MacMullin, Tomlinson Co.; 7. A. V. Gemmill, Speakman Co.; Fred Thompson; 8. E. L. MacWhorter, Byers Pipe Co.; L. C. Higgins, Grinnell Co.; A. Wm. Hale, Stanley G. Flagg & Co.; 9. R. L. Griffin, W. A. Case and Son Co.; Luther Brown, Tomlinson Co.; W. W. Oliver, W. A. Case and Son Co.; Ford Pratt, manufacturers' representative; 10. A. Verrell, Tomlinson Co.; Chas. Wilkinson Jr., Kohler Co.

Delaware Golf

- *45th anniversary of A. A. Tomlinson in the plumbing supply business celebrated by tournament and dinner of Delaware Valley Trade Golf Assn.*

The 45th anniversary of A. A. Tomlinson's entry in the plumbing supply business was celebrated recently by a golf meet and dinner given in his honor by the Delaware Valley Trade Golf Assn.

Mr. Tomlinson joined the Speakman Company, Wilmington, Del., in 1892. In 1903 he organized the Virginia-Carolina Supply Co. at Norfolk, Va. In 1915 he bought a controlling interest in Froelich Bros., Inc., and operated both companies independently until 1922, when they were merged under the name of Tomlinson Co., Inc. The company now operates eight stores in Pennsylvania, Virginia and North Carolina.

"Forty-five years ago plumbing fixtures were more or less a luxury," reminisced Mr. Tomlinson on the occasion of his anniversary. "Very few houses had bathtubs, and our sales on this fixture were confined largely to wood-cased, copper lined tubs. We sold a few enameled iron tubs with wood rims and a few solid porcelain tubs, most of which were imported from England.

"As I recall the old days we had a very limited line of fixtures to sell, and the volume of business was small. When we opened in Norfolk, Va., in 1903, there was only one other jobber in the state. There was not a single supply house in North Carolina. Very few of the towns in the two states had water works and sewerage systems. Our business even 35 years ago was restricted on that account.

"I am happy to say that I have got a lot of pleasure and have had some unusual experiences in this line of business. While we have made great strides in the plumbing and heating business during the past 45 years, I am firmly convinced that we can look to an even greater improvement in the future. The possibilities are beyond my conception; and it does make a fellow feel good to think that he is engaged in promoting the sale of materials which are so essential and for which the future prospect for increased business is so encouraging."

All of the Tomlinson branch managers and his entire force from Phiadelphia, along with other associates, were guests at the banquet. Charles P. Hackett, president of the association and toastmaster, read a letter from Harry Speakman of Speakman Co. Telegrams of congratulations from Tomlinson's southern stores employees were read. Arthur A. Leath, presented him with a watch from former employees. George Urwiler, of the Philadelphia store, presented him with a golf bag. There were talks by Jack Lynch, Luther W. Brown, J. Fletcher Wright, Herman J. Kleinman, Henry Derfler, George P. Cartwright, Frank Dows, William L. Stockwell, R. L. Griffin, Arthur H. Dufort and Ford Pratt.

Morning round prize winners were E. L. MacWhorter, Jack Sutter and Charles G. Wall. The following won prizes in the afternoon round: Charles Muend, Charles Hackett, L. C. Higgins, J. F. Wright, H. H. Held, M. F. Blankin, Ray Groff, A. A. Ahlff, James Fraser, A. W. Hale, T. H. Powers, George Pearce, Jake Fleming, Jack Carr, H. F. Wageman, B. H. Deacon, Russell Knight, T. F. Burke, Russ F. Kleinman, Jack Burnham and A. B. Seither.

Scores follow:

18 holes—Afternoon round

Jake Fleming	90	8	82
Don Hutchinson	Guest		107
Harry Officer	Guest		102
James Dwyer	109	18	91
A. B. Seither	96	8	88
H. H. Held	103	28	75
T. H. Powers	94	14	80
Ray Groff	91	12	79
Chas. P. Hackett	97	24	73
Robt. G. Savill	115	22	93
George C. Pearce	104	24	80
Russell Knight	103	18	85
James Fraser	92	12	80
Charles Muend	100	30	70
George F. Sauter	Guest		96
J. F. Wright	89	14	75
E. L. MacWhorter	91	17	74
Jack Burnham	104	18	86
L. C. Higgins	104	30	74
A. W. Hale	92	12	80
Elwood Costa	Guest		120
Charles G. Wall	92	14	78
M. F. Blankin	87	10	77
A. A. Ahlff	90	10	80
H. J. Kleinman	112	20	92
Wm. C. Hanson	111	20	91
Thos. F. Burke	109	24	85
Jack Sutter	109	21	88
H. F. Wageman	103	21	82
E. A. Woods	98	21	77
B. H. Deacon	91	8	83
C. E. Wilkinson, Jr.	87	14	73
J. H. Verell	97	10	87
R. F. Kleinman	96	10	86
R. MacMullin	130	30	100
J. Daubert	123	30	93
C. H. Miner	98	30	78
E. L. Maxwell	117	30	87
Jack Squires	104	16	88
A. H. Dufort	109	22	87
F. LaBaw	112	26	86
H. J. Carr	98	16	82

9 holes—Morning round

A. A. Ahlff	46	5	41
Ray Groff	46	6	40
Thom Powers	48	7	41
C. H. Miner	Guest		48
R. MacMullin	Guest		58
J. Daubert	Guest		60
George C. Pearce	59	12	47
Russell Knight	51	9	42
R. F. Kleinman	47	5	42
A. V. Gemmill	41	3	38
Fred Thompson	Guest		47
L. C. Higgins	53	15	38
E. L. MacWhorter	43	9	34
A. W. Hale	47	6	41
Wm. C. Hanson	48	10	38
H. J. Kleinman	49	10	39
Jack Sutter	47	11	36
Thomas Burke	51	12	39
Elwood Costa	Guest		59
Charles G. Wall	45	7	38

Taken at Plumbing Trades Golf Assn. tournament at Rolling Green. 1. P. J. Brown, H. Scheel, J. J. Bushnell; 2. Henry O'Callaghan, George Mathews; 3. A. C. Brown, R. J. Weber, Peter Munn, Tom Horan; 4. J. Piraux, L. P. Eaton, Henry Swade

Danbury Code

Clarence Whally, Mark Sullivan, George Durham, Larry Coughlin and William V. Cottrell are members of a committee selected to make an investigation and formulate plans for a plumbing code for Danbury, Conn. It is reported that present lack of a plumbing code in Danbury is likely to lead to insanitary conditions.

A report of the committee is expected during the month and rules will be drafted to bring about absolutely sanitary conditions offering a definite protection to home owners and tenants. A plumbing standard will be set up that must be adhered to by all plumbers in the city and all jobs will be subject to inspection and acceptance. Operation of the code will be self-supporting. Plumbers will be licensed on payment of a small fee and, before accepting a contract or doing a job, will be required to file plans, specifications and a list of materials to be used.

The plumbing fees will be used to pay an inspector a nominal salary and also finance operation of plans. The code is expected to offer protection to local plumbers.

Donate Exhibit

The Dallas (Texas) Master Plumbers Assn. has donated to the Dallas Technical High School a $2,000 exhibit of cross connections that was shown at the Pan American Exposition, the Dallas *Morning News* reports.

The exhibit is described as an educational display to demonstrate the dangers of cross connections in plumbing, and to show how city water can be contaminated by raw sewage.

Chicago Golf

With an attendance of 75, the Chicago Plumbing Trades Golf Assn. held its final tournament of the season at Rolling Green Country Club October 7.

In class A the Presidents' trophy donated by Thomas F. Hanley, Jr., president of the Master Plumbers Assn. of Chicago, was won by Thomas R. Horan, who had a total score for the four games of 289. The prize for season low net was won by H. M. Doyle. The Bill Woolley Cup, donated by William J. Woolley for second low net in class A, was won by Harry Yelton.

Class B prize winners were John Madden, Louis Katz and Ed Hawley. These prizes were donated by Henry P. Reger, William Hildeman and James W. Fettes. Charles W. Jones won a consolation prize for being only one point over the total necessary to receive a season prize.

Winners of day prizes were H. M. Doyle, Henry O'Callaghan, John Guldan, Rupert J. Weber, G. Holm and A. Foldberg. The following were flight winners: J. Stanfield, F. Fabbri, C. A. Taylor, H. Breetzke, A. Ekdahl, L. Washington, J. Bushnell, H. Yelton, Porter West, Chas. Watson, L. P. Eaton, J. Hadley, M. Schulhof, Louis Katz, R. Rose, H. Misch, W. J. Woolley and C. Barrows.

George Mathews, chairman of the golf committee, presided at the evening dinner. He announced the close of a season which had a total attendance of over 400. Pres. Thomas F. Hanley introduced Tod Wilkins and Andrew Schader, Peoria; Roland Rose; Fred Fruehoff; and Al Schlehuber; John Kohler of Kohler Co.; and Arthur Purnell of Youngstown Sheet and Tube Co.

William Hildeman of Chicago Heights was elected chairman of the association for the coming year.

Scores were:

D. O. Anderson	117	30	87
Ted Arenberg	133	40	93
Warren Barr	120	28	92
Chas. Barrows	104	20	84
Harry Breetzke	86	19	67
A. Brown	116	25	91
P. J. Brown	106	23	83
H. Burr	88	10	78
John Bushnell	106	28	78
E. W. Carroll	99	19	80
H. Crum	109	21	88
H. M. Doyle	78	8	70
Chas. Dreier	107	27	80
L. P. Eaton	108	36	72
A. Eckdahl	108	35	73
C. J. Erickson	102	22	80
Frank Fabbri	96	19	77
Geo. Feldkamp	125	35	90
A. Flodberg	101	29	72
Fred Fruehauf	93	15	78
Harry Giles	110	25	85
John Guldan	89	18	71
Frank Hackett	111	19	92
R. C. Harris	120	34	86
Ed Hawley	102	21	81
Bill Hildeman	117	25	82
John Hodley	94	14	80
G. Holm	94	28	66
T. R. Horan	88	10	78
C. W. Jones	99	21	78
Louis Katz	105	29	76
Wm. Knauss	115	27	88
J. C. Latimer	117	24	93
C. R. Lindblad	101	19	82
John Madden	100	21	79
H. Misch	93	22	71
E. Mortimer	100	22	78
Peter Munn	108	27	81
Henry O'Callaghan	89	17	72
Art Purnell	83	6	77
Harry Peterson	85	12	73
Jos. Piraux	129	40	89
Mr. Reynolds	94	16	78
Ralph Reedy	89	12	77
E. Rietz	104	18	86
Fred Rix	113	35	78
Homer Robertson	104	19	85
R. Rose	91	14	77
F. H. Ruhnke	98	18	80
A. Schadder	99	20	79
Herman Scheel	116	31	85
M. Schulhof	90	20	70
Phil Sieben	101	24	77
Wm. Spillane	96	16	80
Jess Stanfield	94	16	78
Henry Swade	102	27	75
A. D. Swift	115	30	85
C. A. Taylor	88	12	76
Larry Walsh	87	16	71
L. Washington	105	25	80
Chas. Watson	118	26	82
R. J. Weber	94	25	69
E. Weiss	111	31	80
J. M. Well	123	40	83
Porter West	91	14	77
M. Westerberg	88	15	73
Tod Wilkins	87	18	69
Bill Woolley	94	19	75
H. Yelton	96	20	76

Virginia Code

At a board of directors meeting of the Virginia Associated Plumbing and Heating Contractors held in Norfolk recently President Chichester appointed A. R. McGonegal chairman of a committee to draft a state code.

Obituaries

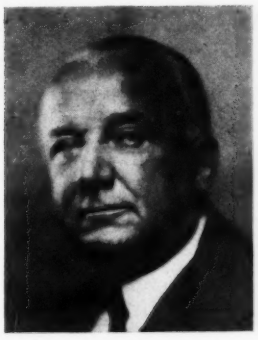
P. C. Brooks

Percy C. Brooks, 65, executive vice president of Fairbanks, Morse and Co., died October 15. He had been associated with the company for 38 years. When the company organized a Canadian branch in 1906, Mr. Brooks became general manager and vice president. After the World War, he was transferred to St. Johnsbury, Vt., in charge of factories owned by E. & T. Fairbanks Co. In 1930 he went to the New York offices, becoming president of E. & T. Fairbanks Co., president of the Moline Scale Co., and vice president of the Canadian Fairbanks, Morse Co., Ltd. In the same year, Mr. Brooks came to Chicago as executive vice president of the parent company.

He is survived by his widow and one daughter.

W. E. Pitt

William E. Pitt, 54, Cheyenne, Wyo., plumbing and heating contractor for fifteen years, died recently. He is survived by his widow, one daughter, two sons, his mother, two sisters and one grandson.



W. R. Sweatt

W. R. Sweatt

William R. Sweatt, 71, former head of the Minneapolis-Honeywell Regulator Co., died October 12. His first business connection was with the Electric Thermostat Co., formed with Mr. Sweatt as secretary and treasurer. That company later became the Minneapolis Heat Regulator Co. and in 1927 became the Minneapolis-Honeywell Regulator Co.

Mr. Sweatt became president in 1893 and retained that position until he became chairman of the board of directors in 1927. Retiring in 1933, he moved to Florida and lived in Palm Beach.

Surviving are his widow, two daughters and two sons.

A. C. Heath

A. C. Heath, vice president of the Leighton Supply Co., Fort Dodge, Iowa, died October 9.

He was a charter stockholder, a member of the board of directors and vice president of the Leighton Supply Co. since its organization in 1909. He is survived by his widow, two daughters, one son and eleven grandchildren.

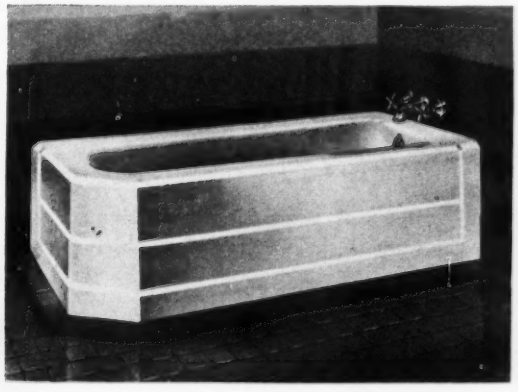
H. H. Brown

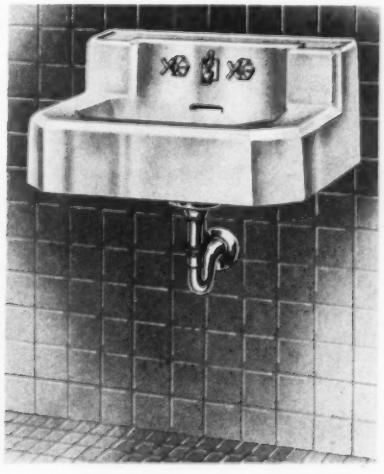
Harry H. Brown, 43, assistant vice-president of the Heating & Plumbing Finance Corp., New York, died on October 14. Mr. Brown had been connected with this organization for approximately ten years as special field representative in the East, South and Mid-West. He was formerly manager of the Chicago office.

K. A. Nilson

Karl A. Nilson, 36, head of the heating department of Nilson Brothers, Chicago plumbing and heating contractors, died suddenly October 7. He had been associated with his father, Andrew Nilson, for a number of years. He is survived by his widow, two daughters and three sisters.

Symphony of Beauty





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E. V. Brigham

Edward V. Brigham, 70, retired manufacturer of plumbing ware, died September 29 at Pasadena, Calif.

Born in Lansing, Mich., Mr. Brigham entered the plumbing business as a young man in a sales capacity. He lived in Chicago, Detroit and Kalamazoo, Mich., where he was an official of the Kalamazoo Sanitary Mfg. Co. He was in retirement in California at the time of his death.

W. F. Gilling

William F. Gilling, 75, assistant manager of the Boston branch of American Radiator and Standard Sanitary Mfg. Co., died suddenly Sept. 24. His widow survives.

Donald McDonald

Donald McDonald, 68, manufacturer of gas meters, died recently. He was a director of the American Gas Assn. in 1924 and 1925. One of the incorporators of the Assn. of Gas Appliance and Equipment Manufacturers, he served as its first treasurer and was a member of its executive committee. Surviving are his widow, two daughters and five grandchildren.

New Contractors, Business Changes

Detroit, Mich.—The W. J. Phillips Co., Inc. has been chartered; its address is 1165 W. Warren Ave.

Portland, Ore.—E. J. Segi has opened a plumbing and heating business at 5713 N. E. Union St.

Stamford, Conn.—National Heating Co. has been registered to operate a heating business at 15 Jefferson St. by J. F. Fisher.

Woodmont, Conn.—Woodmont Plumbing Shop has been established at 18 Cherry St. by W. B. Gutenberg.

Richmond, Va.—E. W. Rudd, Inc. has been chartered by M. D. Martin and L. C. O'Connor to engage in the plumbing and heating business.

Roseville, Calif.—A. W. Garner has opened a plumbing and heating business.

Houston, Texas.—N. Merfish, Merfish Plumbing Supply Co., has bought two lots on which he will erect his new business building at 1902 Washington Ave.

Everett, Mass.—The Coleman Company, formerly the Coleman Equipment Company, has moved from Cambridge to 48 Waters Ave.

Mt. Vernon, N. Y.—Reliable Automatic Sprinkler Co., Inc. has moved to 78 Bronx St.

Convention Dates

November 10-12—WELDING.—Thirty-eighth annual convention of the International Acetylene Assn., to be held in Birmingham, Ala., at the Tutwiler Hotel.

November 13-15.—DISTRIBUTORS.—Meeting of Southwestern Wholesale Distributors Assn. to be held in Guaymas, Mexico, in Hotel Playa de Cortes.

November 20. — PENNSYLVANIA.—Mid-winter meeting of Pennsylvania State Assn. of Master Plumbers, to be held in Harrisburg, with headquarters in the Penn Harris Hotel.

January 24-28.—A.S.H.V.E.—Exposition of the American Society of Heating and Ventilating Engineers, to be held at New York City, with headquarters at Grand Central Palace.

January 25-20.—HEATING AND AIR CONDITIONING.—Winter convention of the National Warm Air Heating and Air Conditioning Assn., to be held in New York City with headquarters at the Roosevelt Hotel.

June 6-9.—N.A.M.P.—Fifty-sixth annual convention of the National Assn. of Master Plumbers, to be held in Cleveland, Ohio, with headquarters in the Hotel Cleveland.

ELECTROL
For 20 years of time-proven performance.
For quality oil heating and air conditioning equipment at prices any home owner can afford.
For equipment possessing exclusive features which make it more saleable.
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Manufacturers of
Automatic Oil Heating and Air Conditioning Equipment
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Questions

Steam Heating System . . .

Steam Heating System

- *This reader wants to cure a condition in a vapor heating system where a main fills with water*

To the Editor:

We have a large residence in which a vapor system of heating is installed as shown in Fig. 1. Everything works all right until about ¼ lb. pressure is secured on the boiler and then the main down to the servants' quarters fills up with water. All lines are pitched and we are at a loss to know what may be causing this trouble.

Penn. L. H. A.

To the Reader:

You have sent us an unusually complete sketch of your system and we assume from the drawing that you are using a dry return on the system, dropping down

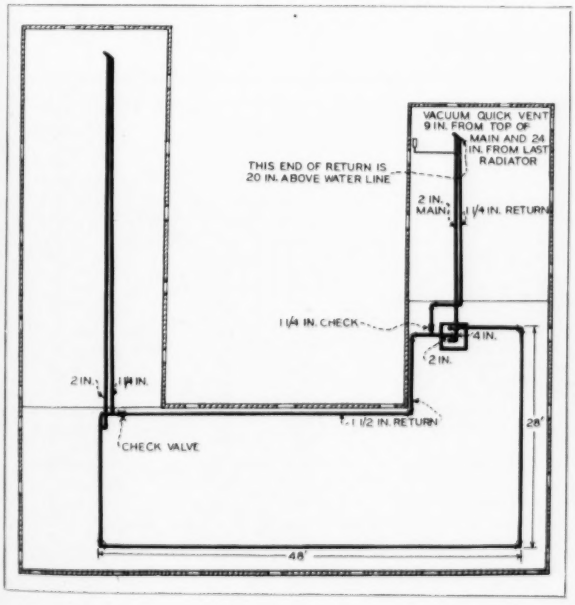
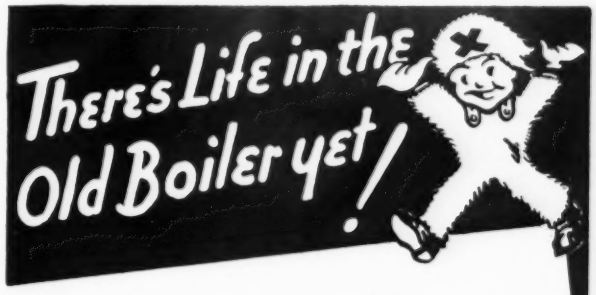


Fig. 1

under the boiler water line at some point which is located near the boiler.

The presence of water in the end of the main running to the servants' section seems rather peculiar when the end of this main is 20 in. above the boiler water line.



TELEPHONE 880-W

DAVID B. FISHER
PLUMBING, HEATING and SHEET METAL WORK
MAIN STREET
MEXICO, MAINE

September 10th, 1937

"X" Laboratories, Inc.
25 West 45th Street
New York, N. Y.

Dear Sirs:

A while ago, I encountered a badly cracked boiler, in fact, cracked so badly that numerous other plumbers stated that a new boiler was necessary.

Being a confirmed Boiler "X" user, I immediately disagreed. I used only four cans of your product, and to my satisfaction and to the mystification of the other plumbers, the boiler was completely tight.

I was so well satisfied with the results, that I had to express my gratitude to the makers of such a fine product.

A Boiler "X" friend
I remain,

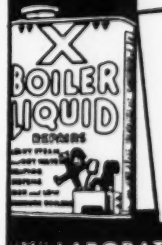
David B. Fisher

BOILER "X"
Comes through Again

Mr. Dave Fisher's fine results with "X" BOILER LIQUID, which he reports unsolicited in the above letter, are no novelty . . . "X" has been saving the lives of cracked and leaky boilers all over the world for *more than twenty years.*

And, you can leakproof steam and hot water systems with BOILER "X", without shutting down or dismantling the heating plant.

Plumbers and Steamfitters everywhere have learned the profit-wise advantages of keeping a carton of BOILER "X" on hand, for boilers do not always leak during the business day. Call your Wholesaler and order a carton of BOILER "X" today.



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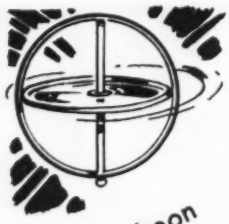
"X" PIPECUT OIL . . . Forms film on pipe threads. Keeps dies cool.

"X" LABORATORIES, INC. · 25 W 45th St · New York



●In 1852 Leon Foucault of France used a new scientific toy — the gyroscope—to demonstrate the rotation of the earth. That same year Jarecki produced its first fittings. The gyroscope is no longer a toy, but has become an instrument for dependability in transportation —just as the Jarecki mark has become a symbol of dependability in fittings. ADDED STRENGTH and DEPENDABILITY means an EXTRA measure of VALUE.

JARECKI FITTINGS

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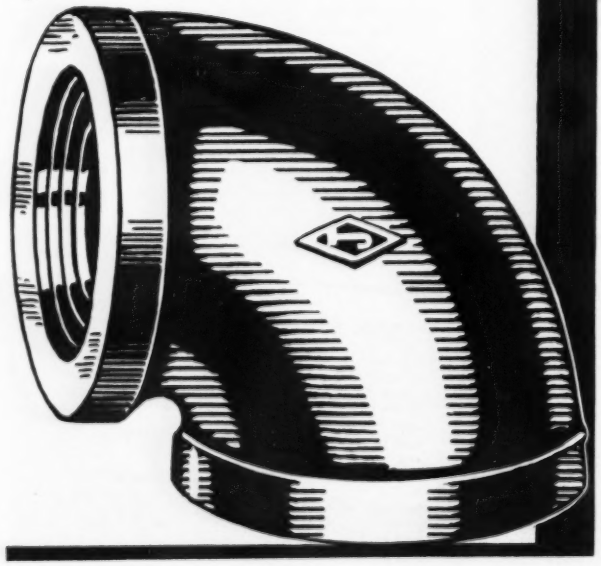

It is evident that some cause exists which is preventing the condensation going back to the boiler as it should This may result from

a. Inadequate size of steam main, causing too much drop in pressure at the end so that the water rises up and floods the main even with 20 in. of difference in level.

b. Air vent fails to work and relieve the air, or entrained air in the dry return between the end of the main and the drop to become a wet return, which requires a vent valve at this point.

c. Too small a return line or a partial stoppage in the return line, which gives the same effect.

d. The check valve stuck or plugged with dirt.

Owing to the fact that no radiation load is given for the main in trouble, it is impossible for us to say whether this is too small or not; we are of the opinion, however, that the drop in this main should not exceed ¼ lb. total, as this would mean a rise of about 7 in. in the water line, to which must be added about 4 in. more to operate the check, provided that the check valve is working properly. With this amount of drop the water would rise about 11 in. out of the 20 in., leaving 8 in. as insurance against flooding the main.

The air venting should be checked very carefully to see that the end of the main and the end of the dry return are vented and no air is being held in the main, preventing the return of the condensation.

Tank Connections

● *A scheme of connecting a receiving tank and pump is suggested for this reader*

To the Editor:

We would like to know how to connect a receiving tank and pump. We have our return lines running into a tank and from the tank the return must be pumped

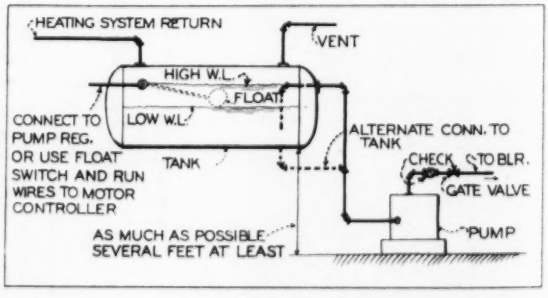

Fig. 2

into a high pressure boiler. If possible, we would like to receive a sketch showing the return and discharge lines, vent line and other connections.

N. Y. A. P.

To the Reader:

We are presenting a sketch of a scheme of running the return into a closed tank and then pumping it into the high pressure boiler. If you desire to make this automatic, a float should be used on the tank so that when-

ever sufficient water accumulated in the tank, the rise of the float would start the pump automatically and the fall of the water in the tank will shut off the pump when a small amount is pumped out. The difference in level will have to be ascertained by the amount of water which can be pumped into the boiler without raising the water line out of sight in the gauge glass. If your boiler is a large one this could be considerable, while if the boiler is a small one the amount of water pumped in at one time would be very limited.

FLOAT OPERATION

With a steam pump, the float could be attached to a pump regulator in the steam line operating the pump. If the pump is an electric driven pump, the float should be wired to the pump controller and a float switch used on the tank.

Sink Drainage

- *Here are suggested several possible solutions to correct a condition where soap suds back up into a first floor sink from upper floors*

To the Editor:

We have just completed a three family house with sinks directly above one another on each floor. Each sink is connected through 1½ in. trap then to a 2 in. stack, with 2 in. continuous venting and a horizontal run of 15 ft. in the cellar.

Our trouble occurs when the tenant on the third floor washes clothes or dishes and uses soap chips—the suds back up into the first floor sink. We are sure there are no obstructions in the pipes, and the same takes place in the other stack which serves the wash trays.

Mass. P. C. & Co.

To the Reader:

From your description we take it that the sinks and tubs are connected through 1½ in. traps into a 2 in. waste stack which is carried through the roof. You also say that you have 2 in. continuous venting. If you mean by this that the venting is accomplished without the use of a vent stack and is secured by the continuation of the waste stack through the roof, we think that the cause of the trouble is the pressure rise at the bottom of the stack when the upper tubs are discharged and this pressure is relieved by backing into the trap of the lowest fixture. If there is such a vent stack connected into the waste stack below the lowest fixture connection, then we are somewhat at a loss as to what the cause of the difficulty might be unless it is that the velocity of flow in the horizontal line is slowed down to such an extent in comparison to the velocity of the water coming down the vertical pipe that the water in the horizontal line causes the water in the vertical to back up, owing to the fact that it cannot enter the horizontal pipe until the other water has run off.

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VACUUM AIR VALVE
Effects equal distribution of heat to every radiator on the one pipe system. Also available in bottom outlet type, ⅛" and ¾" x ⅜" sizes. *Made with adjustable ports.*

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When Ordering No. 10 Valves Specify Adjustable or Non-Adjustable Type.

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WE ALSO MANUFACTURE a complete line of heating specialties including the CADWELL No. 45 unit for Hot Water Heating Systems, CADWELL Control and Relief Valves and PERFECTION Floor and Ceiling Plates.

All are sold only through regular wholesale channels.

Swimming Pool

• *A swimming pool that will not drain properly is the difficulty confronting this reader—Possible causes are discussed*

To the Editor:

We are having difficulty with a swimming pool arranged as shown in the sketch, Fig. 3. The bottom of the pool is 9 ft. below grade and the basement floor is 6 ft. below grade leaving a difference of 3 ft. between the two levels. The sump shown is used only in the winter or off season as a means of drainage for snow or rain and is operated with a lift having a ½ in. supply and 1 in. discharge. The method of draining the pool at present is to use the gravity drain with valves No. 4 and No. 2 closed and valve No. 3 open until the water reduces down to a level just above the 3 in. line running to the pump. Valves No. 4 and No. 2 are then opened and valves No. 3 and No. 5 are closed after which the pump is started. At this point everything seems to be air bound as the water runs very slowly from the pump discharge and it takes about 24 hours to clear the pool. We hope this information and sketch are clear and that you will be able to suggest what might be the cause of the trouble. Incidentally the first year the system was in operation it worked well but the last two years we have had the trouble described.

Mich. S. P.

To the Reader:

There are several things which might be the cause of the trouble if the trouble had always existed. The high portion of the 3 in. pump suction may collect air as you say, the pump may not have sufficient head to lift the water from the lower level of the pool, the pump may be too small, and so on. Owing to the fact that the scheme worked the first year in a satisfactory manner (presumably with the piping and equipment exactly the same as it is now) argues that the present difficulty is one of temporary nature and not inherent in the pipe arrangement or equipment used. This brings the probabilities down to a partial stoppage on the pump suction or pump discharge, which might be due to some foreign matter having accumulated in the pipe, a sticking check valve

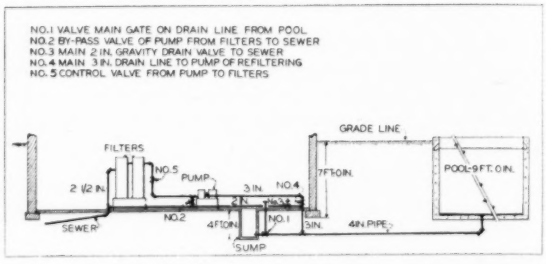

Fig. 3

So Soft
So Refreshing

Sure, we all agree that soft water is kind to her skin—kind to her plumbing—saves her soap and saves her clothes, but you are more interested in the mechanics of how the Uniflow does it. Folks say, "you've got something there".

The Uniflow Self-operating valve requires the owner, his wife or his child once every week or two to lift the lever—that's all, and to take a look at the salt indicator. This sturdy simple vacuum operated valve is the last word in mechanical reconditioning—it is fool-proof and positive. Valves cannot score, leak or stick. A new folder tells you all about it with big pictures. Write for a copy today—it will open your eyes to a real opportunity.

Some good softener territories left for live salesmen.

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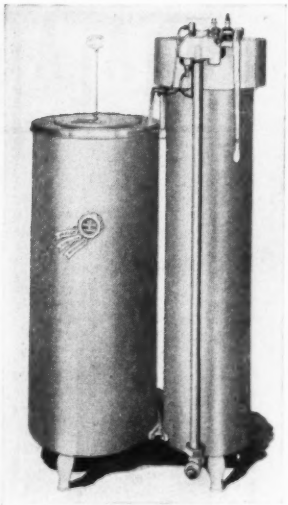

Uniflow Softeners SSO or DSO feature the Uniflow Self-Operating Valve (patented). Moving the handle, automatically brines, backwashes and reconnects softener to house piping. The Uniflow Softener line starts at $48.00 less generous discounts that permit competitive selling in every price market.

Shallow Well Pumps - Deep Well Pumps - Cellar Drainers - Water Softeners - Klarifiers
Water Coolers - Milk Coolers - Septic Tanks - Beer Pumps
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Sell a Lively Line UNIFLOW UNIFLOW MFG. COMPANY, Erie, Pa.

which does not fully open or there may be a defective stop valve.

There could not be an air leak in the pump suction of sufficient size to cut down the pump delivery without having this show as soon as the pool head is applied to this suction line. Neither do we see how air could collect in this high portion of the pump suction as the pool head behind this air would be likely to force it out through the pump, the discharge from the pump being practically a gravity discharge with no head to pump against.

TEST SUCTION

If the reader still is convinced that the pump suction is air bound this may be tested very simply by installing an air cock on the highest portion of this pipe and opening this cock until water comes out of it before starting up the pump.

Shower Installation

• *This reader wants to know the size of tank for three showers serving 40 school pupils—Heater connected to vapor heating boiler*

To the Editor:

Will you give me some information as to the size of storage tank and indirect heater to install on a school job where there are three showers, with about 40 pupils to use them? I am not sure just what the maximum hourly demand will be. The indirect heater is to be connected to a vapor heating boiler.

Wis. A. P. H.

To the Reader:

The amount of water to be heated to supply three showers depends on the usage accorded the showers and the time intervals between usage periods. Assuming that the three showers are used to their maximum capacity, it is quite possible to run off 300 g. p. h. of hot water from each head, making 900 g. p. h. for the total demand. As there are only 40 pupils, it is reasonable to assume that not more than 40 baths will be taken in any one day and, if the average use per bath approximates, say, 30 gal., then a total of

30 gal. × 40 pupils, or 1,200 gal.

will be required per day.

HOURLY DEMAND

Now, if all of these baths are taken during one hour's time, then there will be a maximum hourly demand of 1,200 gal.

If taken over a two hour period, the average hourly demand will be 600 g. p. h., or 1,200 gal. total. If the time extends over, say, two hours in the morning and another two hours in the afternoon, then the usage per hour would average 300 gal, for a total of four hours, or 1,200 gal. total.

It will be seen from the above that the hourly demand may run anywhere from 300 g. p. h. up to 1,200 g. p. h., all depending on how the showers are used. On the

On your RIDGID No. 65R and Avoid the Bother of Changing Chaser Dies

No more waste of time looking for different size dies when you want to thread 1", 1¼", 1½" or 2" pipe if you have a RIDGID No. 65R. Simply move the setting post to the pipe size you want. One set of dies instead of 4 sets — one-fourth the bother.

You'll like the new-style workholder, too. Twist the gauge ring to pipe size, put on the pipe, tighten one screw — quick and easy.

Thousands have found also that this new No. 65R cuts clean accurate threads in all variations, all kinds of pipe. It's a time, temper and money saver.

For more profitable work with less effort, get one of these threaders at your Jobber's.

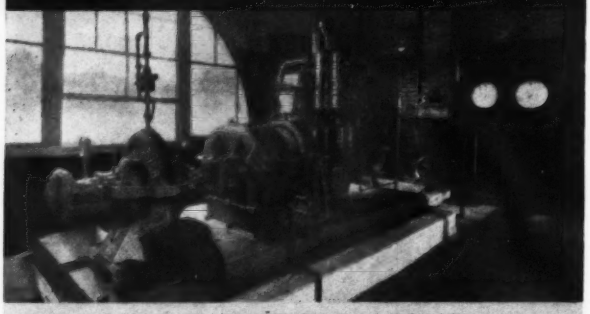
The Ridge Tool Co., Elyria, Ohio, U. S. A.

What? No Repairs?

With RIDGID Pipe Wrenches, practically none. Housings guaranteed not to break or warp — stops fully 75% of your wrench troubles.

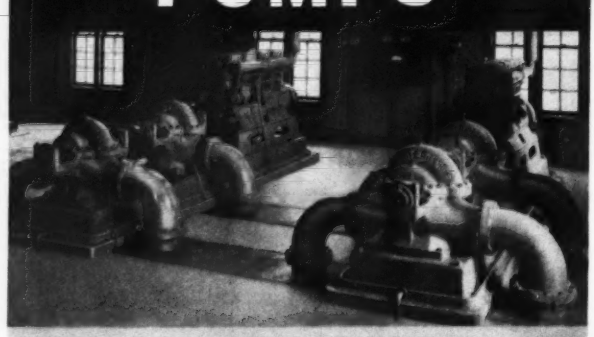
RIDGID PIPE TOOLS

TOMORROW'S



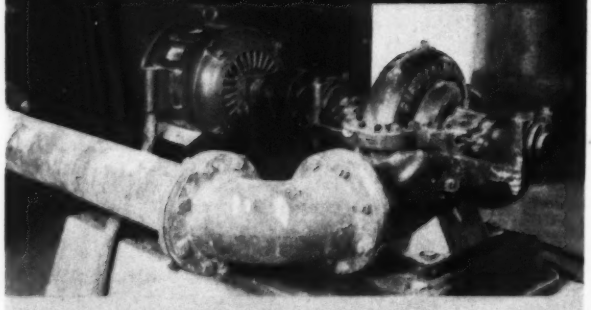
Gardner-Denver Horizontally Split-Case Centrifugal Pump at Foxboro, Mass., Municipal Plant

PUMPS



G-D Centrifugals at Quincy, Illinois, Waterworks

... TODAY



G-D Centrifugal installed in Clayton, Missouri, Municipal Swimming Pool

Day after day, month after month, in all kinds of water supply installations, Gardner-Denver Centrifugal pumps are giving the kind of service exacting engineers require. They're built for tomorrow, with tomorrow's design, with efficiency that *lasts*. Every pump is backed by Gardner-Denver's reputation for integrity in manufacture. Let us tell you more about Gardner-Denver Centrifugals—the Centrifugals that mean true economy in *your* plant.

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QUINCY *Since 1859* ILLINOIS
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other hand, it may be demonstrated that on the basis of 10 minutes per user only 6 showers could be taken on each fixture in an hour's time and that, if 40 pupils used the showers at an average time of 10 min. each, it would require

10 min. × 40 pupils / 3 showers or 133 minutes

which is 2 hours and 13 minutes as the minimum time to draw off the 1,200 gal., which comes down to

1,200 gal./ 2-13/60 or 500 g. p. h. (approx.)

If a tank of 600 gal. capacity were used and were hot at the beginning of the time for shower usage, then about 500 gal. could be drawn out of this tank, leaving some reserve and the other 700 gal. required to make up a total of 1,200 gal. would have to be heated over the 2 hr. period, making the heating capacity 350 g. p. h.

SAFE ASSUMPTION

While we do not know if this is the manner in which it is intended to use the showers, it would seem that they could not be used to any greater extent and that equipment designed on this basis would, at least, be safe.

Assuming that a 600 gal. tank were used, the indirect heater should be installed under the water line of the boiler. The indirect should have a heating capacity of around 400 g. p. h. of water from 50 deg. Fahr. to 150 deg. Fahr. or 100 deg. Fahr. rise with the boiler water at about 212 deg. Fahr.

Questions For READERS

The following reply was selected as the answer to the reader question asked in the September issue of DOMESTIC ENGINEERING. This particular reply was chosen because of the interesting and complete manner in which the answer was presented.

Would there be an increase or decrease in the humidity of an ordinary residence where no artificial humidifying is provided if window stripping were to be placed on the windows?

The answer to this question, in my opinion, is that there would be an increase because every house adds some moisture to the air, especially in times of low humidity in the house and, the more this absolute amount of moisture is diluted by outside infiltration, the less will be the number of grains per lb. of air inside the house. Since the inside temperature of a residence is held more or less constantly at or around 70 deg. Fahr. during cold weather, it follows that the lesser absolute humidity in the air will also represent a lesser relative humidity at the fixed temperature of approximately 70 deg. Fahr.

This may be proved to some extent by noting that frosting of the windows in the average house usually begins at or around 5 deg. Fahr. above zero on days when washing or other unusual moisture producing

processes are not being carried on. According to the tests made on window glass this represents an inside relative humidity of about 20 per cent or
20 per cent of 110.5 gr., which is 22.1 gr. per lb. absolute, since air when saturated at 70 deg. Fahr. contains a maximum of about 110.5 gr. per lb. The outside air under 5 deg. Fahr. above zero temperature cannot contain over 7.1 gr. per lb. and, assuming an average outside humidity of about 50 per cent, this means that the infiltration air contains not over

7.1 gr. × 50 per cent or 3.5 gr. per lb.

Consequently the difference in the absolute humidity of the air in the house when compared to the air coming in from outside must be added in the house and constitutes

22.1 gr. minus 3.5 gr. or 18.6 gr. per lb.

LESS AIR TO HUMIDIFY

The usual air change allowed in residences is about 1½ for two sides exposed and 1 air change for one side exposed. Regardless of what the exact amount of air change is which may be assumed, if it is possible for window stripping to reduce this amount of infiltration it will be evident that the amount of moisture developed in the house will be distributed over a lesser amount of incoming air so that, if only 75 per cent as much infiltration occurred after weather stripping were installed, the absolute humidity per lb. of air in the residence would increase per lb. of infiltration by

18.6 gr. / 0.75 or to 24.8 gr.

which, added to the grains already in the outside air, would make a total grains of

24.8 plus 3.5 or 28.3 grains per lb.

and this would be equal to a relative humidity at 70 deg. Fahr. of

28.3 / 110.5 or 25 per cent approximately

This proves that any reduction in the infiltration will increase the inside humidity around

25 per cent minus 20 per cent or 5 per cent

being greater when the reduction of infiltration is high and less when the reduction of infiltration is only slight.

How Would You Answer This Question?

A roof which is flat and has an area 80 ft. x 75 ft. is all pitched to a leader in the center which is 6 in. in size; at the bottom the leader is connected into a horizontal 6 in. drain line running 200 ft. at a pitch of 1/10 in. per ft. and connected into a street sewer. In a severe rain storm the rain may come down for periods of 5 to 10 minutes at the rate of 6 in. per hour although this rate will not continue for any great length of time. When the rain is falling at this maximum rate how high will the water back up in the bottom of the leader?

Problems such as this one are met in everyday work. Assuming that you were to calculate such a condition, how would you do it? Perhaps in your work you have had similar figuring to do. The most interesting and accurate answer will be paid for and published in the January issue of DOMESTIC ENGINEERING.

There's a Market for YOU *on Regulators*

Made in the following sizes: ¼", ⅜", ½", ¾", 1", 1¼", 1½", 2".

Don't overlook the tremendous opportunity which exists for equiping new and old gas-burning appliances with dependable gas pressure regulators! And remember these points about Barber Regulators:

- **A precision device, rigidly inspected, gas-tested for operation within very low pressure drop.**
- **Quality built throughout, brass working parts, all-bronze body, neat, compact design.**
- **Sizes ¼" to 1½" tested and certified by American Gas Association Testing Laboratory, complying with high standards of safety and dependability.**
- **On equipment of such prime importance, RELIABILITY is far more vital than low cost.**
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Write for catalog and price list on Barber Burner Units for Gas Appliances, Conversion Burners for Furnaces and Boilers, and Gas Pressure Regulators.

THE BARBER GAS BURNER CO., 3704 Superior Avenue, Cleveland, Ohio

BARBER *GAS PRESSURE* **REGULATORS**

PRODUCTS *for* DEALERS

New Water Closet

Shown in the accompanying illustration is a new water closet which has just been announced.

It is pointed out that the new water closet has a modern, integral unit effect though its bowl and tank are bolted together. The water closet is described as having a close-coupled, siphon action washdown bowl, and a beauty of simplicity achieved by the straight lines of the tank and front of the bowl. It is listed as being ideal for modernization jobs because its tank does not require wall support. The dimensions of the unit are given as 29⅜ in. high and 24½ in. from wall to front of the bowl.

This new water closet is announced by Standard Sanitary Mfg. Co., Pittsburgh, Pa.

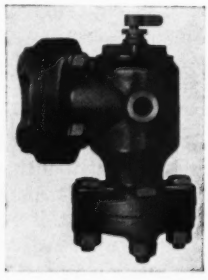
Angle-Type Flow Control Valve

The angle-type flow control valve shown in the accompanying illustration has just been announced. It has been designed for use wherever an angle-type valve is the easiest type to install in the heating system.

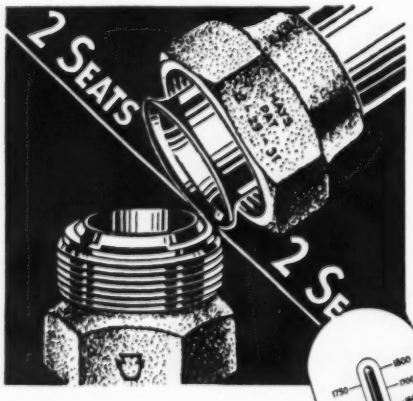
It is further pointed out that when a compression tank is installed in the system, only one valve is needed. One of the features considered of special importance by the manufacturer is the ease with which the valve can be opened manually. For automatic operation, the valve stem is screwed all the way down; for gravity circulation, it is screwed all the way up. This is done, it is indicated, by simply turning with the fingers the wing extension at the top of the stem. There is no guesswork as to whether the valve is fully opened or closed, according to the advantages which are listed for it. This new flow control valve is available in four sizes: 1, 1¼, 1½ and 2 in., respectively.

Bell & Gossett Co., 3000 Wallace St., Chicago, Ill., announces this new angle-type valve.

Water Closet



Angle-Type Valve



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HAYS Double Seals

- Only in Double Seals do you get the mechanical advantage of an extra seat—an extra seal.
- Because Double Seals are Copper to Copper with no sealing agent, they will withstand heat up to about 1800° F. the melting point of copper and brass.
- Six successive freezings failed to burst a Double Seal joint.
- Give your copper piping the extra protection of Double Seals at no extra cost. Write for 24 page catalog.

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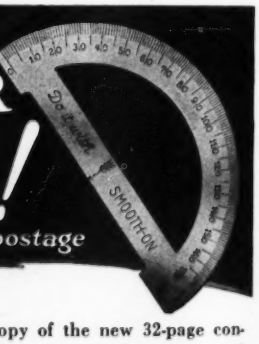
—and we pay the postage



THIS handy accurate tool and a copy of the new 32-page condensed Smooth-On Handbook will come to you by return mail and absolutely free if your request is mailed within 60 days from the appearance of this offer.

Judicious use of Smooth-On for stopping leaks and making loose parts tight, as recommended in the Smooth-On Handbook, is saving thousands of dollars for plant owners, and untold hours of hard dirty overtime work for the operating men. You overlook an opportunity if you do not avail yourself of its benefits.

Get Smooth-On in 1 or 5-lb. can or larger steel pail from your dealer or if necessary direct from us.

SMOOTH-ON MFG. CO., Dept. 12
570 Communipaw Ave., Jersey City, N. J.

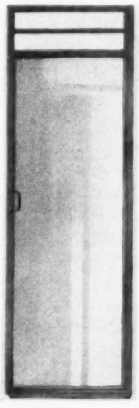
Do it with **SMOOTH-ON**

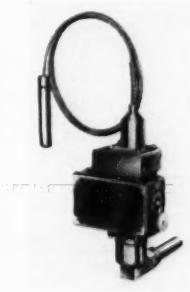
Modulating Boiler Control

The new boiler control illustrated here has just been announced. It is designed in such a way that the control point is automatically raised or lowered to meet the demands placed on the heating system resulting from changes of outdoor temperature.

It is pointed out that the control is to be applied to warm water heating systems to control the circulator or firing devices so that the water temperature will remain at a predetermined point. The control also will maintain any desired minimum boiler temperature to provide domestic hot water in Summer or Winter, according to advantages listed for it. The back-angle type of control is listed as being standard equipment, but the straight shank type will be supplied on special order.

This modulating boiler control is announced by H. A. Thrush & Co., Peru, Ind.





Above, Boiler Control

Glass Shower Door

New Glass Shower Door

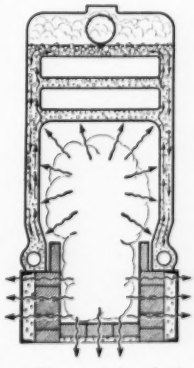
Recently announced and shown in the accompanying illustration is a glass shower door of improved construction.

Formed aluminum is the material used in the construction of these doors, it is indicated. This material with its soft, silvery gray finish, will not tarnish, is impervious to the action of salt or fresh water, soap or air, and is easily kept clean, according to a listing of its advantages. This shower door is equipped with a water spray table and drip gutter attached to the inside bottom of the door. This feature, it is pointed out, renders dual service. When the inclosure is in use, the spray table throws the falling water in and away from the inclosure entrance while the drip gutter catches water dripping down from the opened door, carries it back into the shower inclosure or tub and thus prevents drippage to the bathroom floor. It is indicated the door is ruggedly built with all door corner joints strongly reinforced thus preventing any sag or fall in the door connection. The standard size of door is 24 by 72 in., but it may be had to fit any size of door opening and for any type of shower inclosure.

This new door is announced by Fiat Metal Mfg. Co., Chicago, Ill.

NEW DESIGN! . . . NEW EFFICIENCY! . . .
NEW ECONOMY! . . . NEW SALES!
IT ALL ADDS UP TO "22"

"Water, water everywhere . . ."



Compare the "22" (above) with other boilers in which heat wastefully escapes through the sides of the base and the floor.

● This outstanding example of Kohler engineering, the "22" oil boiler, offers you:

1 Completely water-surrounded fire-box — water absorbs all radiant heat of the burner flame. No heat escapes through the base.

2 Long fire travel — gases of combustion pass through the boiler *four* times.

3 Multiple heat-extracting fins.

4 Rear extended jacket concealing oil burner, instruments, controls, water heater.

5 Built-in, fully-automatic, all-year-round hot water heater.

6 Large fire-box with greater heating area.

7 Thick blanket of heat-and-sound-insulating rock wool.

8 Heavy-gauge steel jacket finished with hard, durable baked enamel. Easy to clean. Soft green-and-black color combination.

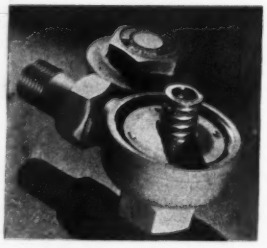
Plus many extras! The Kohler "22" is sure-fire selling material. It has the Kohler name — it has Kohler engineering and Kohler efficiency. Write for folder and complete information. Kohler Co. *Founded 1873.* Kohler, Wisconsin.

KOHLER OF KOHLER
PLANNED PLUMBING AND HEATING

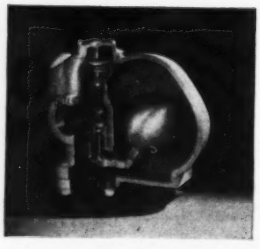
PROTECT
yourself against Complaints
install **BARNES & JONES**
Equipment

When you install a Barnes & Jones vapor or vacuum heating system, it goes in to stay—assures lowest final heating costs—eliminates troublesome complaints and costly servicing. Here are some of the reasons:

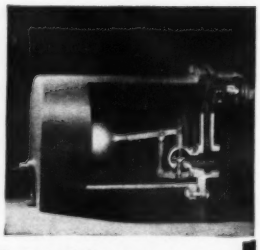
Barnes & Jones modulation valves have extra-heavy bodies, heavily nickel plated. Operation is simple, trouble-free. They stand up indefinitely without leaking or repacking.



Barnes & Jones radiator traps are steam bronze castings, with extra-heavy tail piece. All apparatus is precision machined throughout. Thermostatic Cage Unit is complete in one piece, tested and locked in permanent adjustment at the factory.



Barnes & Jones blast traps are designed for easy installation, quick accessibility. Inspection and cleaning is done without breaking pipe connections or using special tools.



Note the large floats and sturdy construction. Valve, with bronze seats, is water sealed at all times. Thermostatic element insures rapid, complete elimination of air.

Write for complete bulletins on Barnes & Jones systems for every heating need.

BARNES & JONES
INCORPORATED
411 BROOKSIDE AVE. BOSTON, MASS.

Domestic Hot Water from Waste Stack Heat

The free stack, water preheater, which is shown in the accompanying illustration, has just been announced. The essential purpose of this preheater, it is indicated, is to provide a supply of domestic hot water from heat which otherwise would be dissipated in the form of stack heat.

This device is listed as consisting of five outer tubes and five concentric inner tubes with a space of one-eighth inch between the inner and outer tubes through which a thin film of water rapidly circulates. The headers are designed in such a way that the water must travel back and forth to the entire combined length of 50 in. before it reaches the outlet port. The hot gases, it is pointed out, pass inside of the inner tube and outside of the outer tube, and heat is rapidly absorbed by the thin film of water between the tubes. Under continuous operation, it is indicated, the preheater will heat 30 gal. of water to a 90 deg. Fahr. temperature rise in three hours with a 450 deg. Fahr. stack temperature. It recovers about 25 per cent of the heat loss, according to advantages listed for it.

The new preheaters are announced by Reif-Rexoil, Inc., Buffalo, N. Y.

Commercial Bin-Fed Stoker

Left, Hot Water Heater

Commercial Bin-Fed Stoker

The bin-fed stoker illustrated here has just been announced. It is designed for use in boiler rooms where maximum clearance is needed immediately in front of the boiler.

The gear case and fan unit, it is indicated, is mounted next to the wall of the coal bin. The driving end of the stoker is described as being an entirely new type with the drive going from a gear case through a shaft to the back of the unit. Connecting the shaft and the feed worm is a chain drive which is sealed in a grease-packed housing, it is pointed out. Another indicated advantage is that the stokers have a new type rubber diaphragm volumeter which regulates the air supply, assuring maximum combustion efficiency under all firebed conditions.

This new stoker is announced by Iron Fireman Mfg. Co., Portland, Ore.

Oil Burning Boiler For Domestic Use

The new oil burning boiler shown in the accompanying illustration has just been announced.

One of the listed features of the boiler is its newly designed fin-type, rapid heating surface with heat absorbing flues and baffle-controlled water travel. The enameled steel jacket, it is pointed out, is large enough to include burner, domestic water heater and all controls and wiring. Cleanout baffles and service door are insulated, it is pointed out. Another listed innovation is an opening provided for the taking of flue gas samples. The capacity range is indicated as being from 360 to 765 sq. ft. of installed steam radiation, and from 580 to 1,225 sq. ft. of installed hot water radiation.

This boiler is announced by Crane Co., Chicago, Ill.

Oil Burning Boiler

New Electric Drill

Small Ball Bearing Electric Drill

A new, small, ball bearing electric drill has been recently announced. It is shown in use in the accompanying illustration.

It is pointed out that this new drill meets all the requirements necessary for small unit production and assembly operations. These requirements are: ample power; compact design; light weight; and the ability to work "around corners." It is indicated that an ingenious ventilating arrangement on the drill assures cool motor operation. Two other listed features of this new drill are: Deep vents which are cast in the gear head provide for the free passage of air even though the tool is grasped by the head. The tapered end of the gear head extends over the chuck, protecting the operators' fingers. A removable insulated cap provides easy access to brushes for inspection.

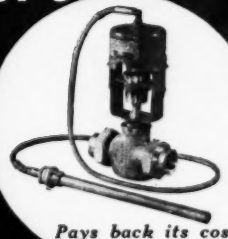
This small electric drill is announced by Black & Decker Mfg. Company, Towson, Md.

Angle-Flow Valve

The new angle-flow valve shown in the accompanying illustration has just been announced. It is designed to be used with the manufacturer's water circulator.

It is pointed out that the valve acts both as a flow valve and elbow at the same time. Listed features of

STOPS OVERHEATED WATER



Reduces Fuel Losses

POWERS Hot Water Tank Regulator

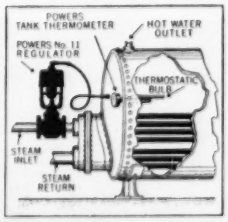
Ends Hot Water Complaints

Pays back its cost several times a year

OVERHEATED water causes complaints, wastes fuel — shortens life of valves and plumbing fixtures and increases deposit of lime in pipes. • Powers regulators will help to reduce these losses. Install them on your hot water heaters. They keep the water at the right temperature. Fuel savings alone often pay back their cost several times a year. As they usually last 10 to 15 years they pay big dividends. *Write for Bulletin 2035.*

The Powers Regulator Co. Offices in 45 Cities. See your phone directory. 2716 Greenview Avenue, Chicago; 231 E. 46th Street, New York City; 1808 West 8th Street, Los Angeles.

45 *Years of Temperature Control*



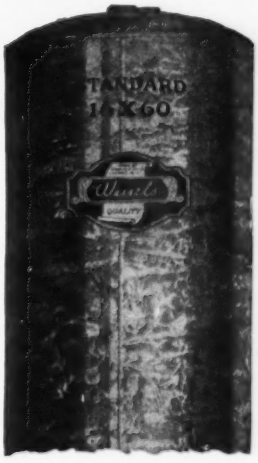
POWERS AUTOMATIC WATER TEMPERATURE CONTROL

ONLY QUALITY and SQUARE DEALING CAN HOLD CUSTOMERS for 25 YEARS

Many of the customers with whom we did business when we began making boilers 25 years ago, are still buying Wessels Boilers.

These customers have remained because they have found Wessels Range Boilers of unfailing quality —and Wessels policies unfailingly desirable.

Wessels boilers protect your good name with their quality. Wessels sales policies protect your profits. Wessels boilers are never sold except to licensed master plumbers through regular jobbers. Their quality is one of your exclusive business assets.



Write for literature on "Wessels Welded," "Double Seal," and "Star Naco" Boilers.

D. D. WESSELS & SONS CO.
1625 EUCLID AVE. EAST
DETROIT, MICHIGAN

improved construction include a new valve disc construction that balances the pressure head to assure definitely against leakage from gravity circulation. Larger sizes of these valves, such as the one illustrated, are constructed with flanged ends, it is indicated, in order to facilitate rapid installation and replacement. The material of the valve body is brass for the 1 in. size and cast iron for the 1½ and 2 in. sizes.

This new valve is announced by Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.

Angle Flow Valve

Hot Water Control

Hot Water Supply Control

Recently announced is the new hot water supply control shown in the accompanying illustration. It is designed for use with steam, vapor and hot water heating systems which employ indirect domestic hot water heaters.

It is indicated the unusually small size of the control permits it to be installed in locations where space is at a minimum. The two wire system incorporated in its design is also pointed out as simplifying the installation. Among the features indicated for the control is that there is no lag in its operation. It keeps the water at an oven-high temperature without overshooting or producing steam. The method of operation of the control is listed as follows: A small permanent magnet is actuated by a very small bimetallic coil inclosed in a copper shell housing through which the water temperature is rapidly transferred. The sealed mercury switch used in the control remains in stationary position and cannot be affected by dust, dirt or corrosion.

This new hot water control is announced by The Mercoid Corp., 4201 Belmont Ave., Chicago, Ill.

New Truck Mounting Pump

Shown in the accompanying illustration is a new type truck mounting pump designed exclusively for this service.

One of the outstanding features listed for this new unit is the fact that no right or lefthand ports need be specified. The unit is so constructed, it is pointed out, that the casing may be turned in the bracket which in turn rotates the port openings. This moves the port openings to the position which the operator may desire. Another listed feature of this new truck mounting unit is the sealed thrust bearing. No foreign matter or water can enter this bearing, thereby eliminating bearing

ASSISTANCE

When certain technical problems cause you to scratch your head in wonderment, see the responsible plumbing and heating jobber in your community. He has the data you need and will gladly pass it on to you.

Kuhns Brothers Co.
Malleable Iron Fittings Co.
K MIF

Let's Look at the Record

COMPARE
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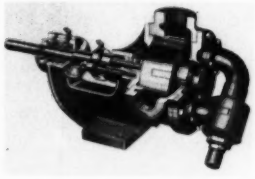
with all other stokers

★ SEE WHY..
You'll do Better
WITH THIS PIONEER STOKER
THAT'S SO OUTSTANDINGLY
Different!
Made by a reliable company to be sold by dependable dealers
KōL-Master Corp., Oregon, Ill.

trouble due to these causes, it is indicated in the release.

Viking Pump Company, Fourth and State Sts., Cedar Falls, Iowa, announces this new truck mounting pump unit.



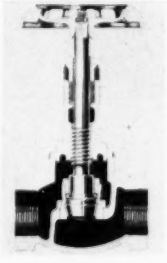
Truck Mounting Pump

New Plug and Seat Ring for Plug-Type Valve

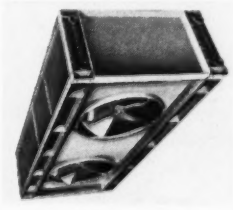
Shown in the accompanying illustration is a new valve which has just been announced. It has been designed for use where service is unusually severe or where coarse or abrasive material is likely to pass the valve.

It is pointed out that the plug and seat rings are made of a stainless steel having a Brinnell hardness in excess of 500. The valve is recommended for service such as continuous throttling for pressure reduction or for free blow duty such as soot blowers, injectors, heating coils, or any steam line where close regulation is required. This new plug and seat practically nullify wear and almost entirely eliminate danger of wire drawing and cutting, according to advantages listed for them by the manufacturer.

Jenkins Bros., 80 White St., New York City, announces this new plug and seat ring for its plug-type valve.



Plug-Type Valve



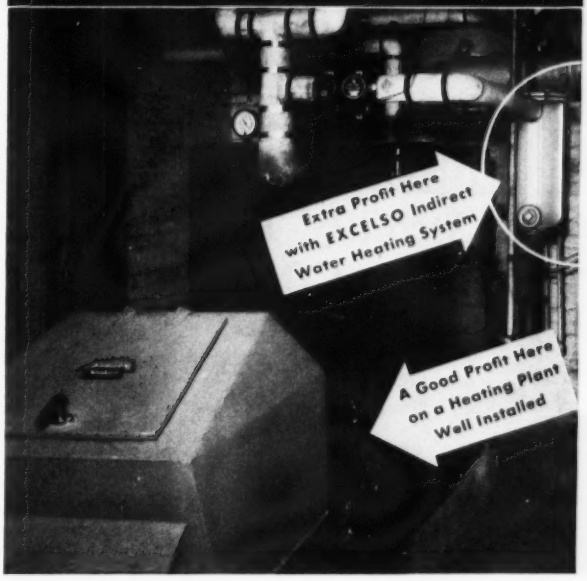
Projection Heater

Multiple Projection Heater

Embodying the same operating principles as the projection unit heater, recently introduced, this new multiple projection heater has just been announced and is illustrated here.

It is described as durably built for permanent service and consists of two extended surface coils contained within a metal casing. The motors are mounted out of the path of the air on a resilient construction. A four-blade propeller fan, especially designed for quiet operation is employed, it is indicated. The method of operation of this ceiling mounted model is described as follows: Warm upper air is drawn through the two coils shown

Watch the "EXTRA PROFIT ZONE" on Every Heating Job



EXCELSO
Will Show where the Money is

● The Federal Home Heating Corporation of Buffalo took an extra profit on this apartment house job with an automatically fired (stoker) installation by selling with it an EXCELSO Indirect Water Heating System.

Whether the installation calls for automatic or hand-fired—a steam, vapor or circulation controlled hot water heating system—extra profits are possible with EXCELSO. Write for EXCELSO Sales Material. We'll show you how to do it.

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Send us the latest "Sales" material on EXCELSO. We can use the extra profits.

FIRM .....

ADDRESS .....

"WELL-FROM ONE WHOLESALER TO ANOTHER

We find that—

KAINER CIRCULATING SYSTEMS

Are Steadily Preferred By
HEATING CONTRACTORS
for their

Hot Water Jobs"

THE REASONS ARE SIMPLE!

They're Mighty Dependable

1. Measured by any standard, Kainer Circulating Systems conform to the most exacting demand for automatic hot water heating equipment.

Kainer Circulators . . . reliable, quiet, efficient; Kainer Governors . . . sturdy, dependable; Kainer Circulation Controls and Accessories . . . all outstanding equipment, all pulling together as one coordinate system, each unit doing the job it is supposed to do . . . JUST AS YOU PLANNED.

Profits? Sure!—Cooperation too!

2. That is the answer to the success so many contractors have found in installing Kainer Circulating Systems . . . knowing beforehand that each complete system—each unit—measures up to a standard. When you leave a job knowing THAT, it means a good clean profit and another satisfied customer.

Sales Policy

3. AND REMEMBER THIS . . . Kainer Circulating Systems are backed by a sales policy that gives you COMPLETE trade protection . . . a line of hot water heating equipment that reaches the consumer ONLY through the plumbing and heating contractor.

For your protection, and for your success in selling automatic heat, INSIST on Kainer. Your local wholesaler will gladly supply your needs.

Write for Bulletin No. 66 Today!

KAINER & COMPANY
761 MATHER ST. CHICAGO ILL.

in the illustration and then projected straight downward in a vertical stream which reaches and stays on and near the floor. As this air stream, on its way to the floor, enlarges, it induces a large amount of room air which gives it volume and so reduces its velocity that it reaches the floor evenly and spreads out in a carpet-like layer in the breathing or "occupied" zone, it is indicated.

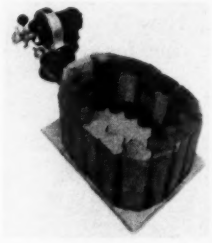
This new multiple projection heater is announced by The Trane Co., LaCrosse, Wis.

Moulded Combustion Chamber

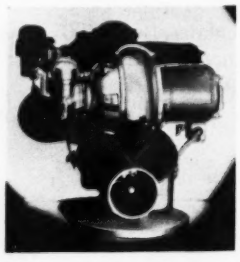
The combustion chamber shown in the accompanying illustration has been announced recently. It is designed for use with oil burner installations.

It is pointed out that the combustion chambers are made of the highest grade refractory material and because of their scientific design insure efficient combustion of the oil. Installation is described as being extremely simple. Another listed feature of the moulded fire brick shapes is that they may be readily formed to round, square, or rectangular shapes without cutting or fitting. A standard package of the fire brick consists, it is indicated, of one front tile and fourteen body tile. The weight of the package, ready for shipping is indicated to be 130 lb.

This new combustion chamber is announced by Scott-Newcomb, Inc., 1922 Pine St., St. Louis, Mo.



Combustion Chamber



New Oil Burner

Oil Burner for Domestic Installation

Shown in the accompanying illustration is an oil burner which has recently been introduced. It is designed for domestic use.

One of the outstanding features of the burner, as listed by the manufacturer, is the design of the firing head, which is described as capable of producing a gently whirling plume of flame. The nozzle, it is indicated, assures perfect atomization, will not drip, and is made of stainless steel or brass. The fan is described as being a balanced unit, constructed of cast aluminum, and mounted directly on the motor shaft. The pump likewise has features worthy of attention, it is pointed out. Among these are: capacity five times burner's normal requirements; quiet operation; packless seal; oil bath operation.

This new burner is announced by Wayne Oil Burner Corp., Fort Wayne, Ind.

New Information and Aids to Sales

Faucets—Price List and Catalog

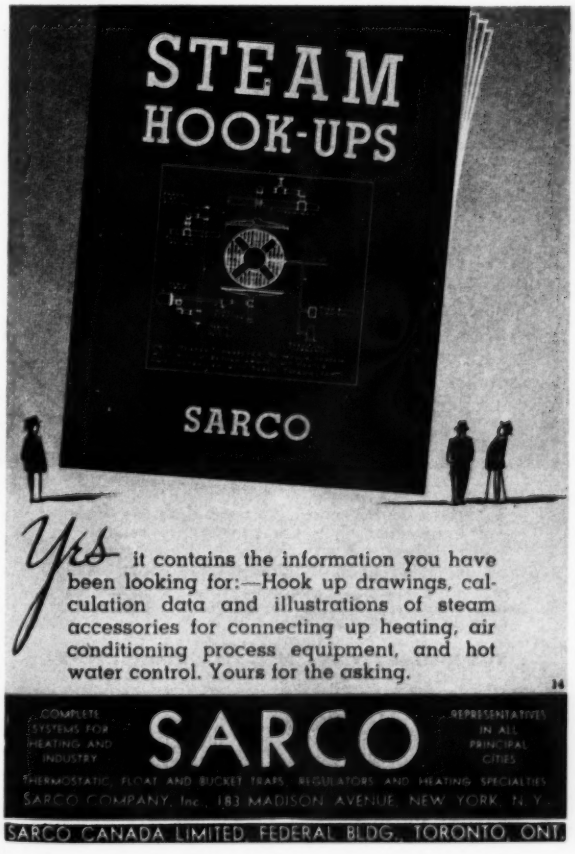
Two new catalogs have just been issued by The Chicago Faucet Co., 2700 N. Crawford Ave., Chicago, Ill. One of these catalogs is an 8½ by 11 in., 63 page, two color job, with a cover of heavy paper printed in three colors. Two of the pages in the front of this book are devoted to a general description of the features of the company's faucets and a listing of the reasons for their longevity. Another page tells how the purchaser should specify faucets which he wishes to buy. The various types of faucets and fixtures are segregated in sections of the catalog with the following sectional headings: Lavatory Faucets; Bath and Shower Fixtures; Sink and Laundry Faucets; Stops, Tank Fillers, Valves; Drinking Fixtures; and Handles, Repairs, Etc. Each fixture is clearly illustrated with an outline engraving and is numbered. A corresponding number heads a paragraph of descriptive matter which pertains to that fixture alone. Miscellaneous information includes instructions on the renewal of various types of faucets and line drawings illustrating typical "Add-a-shower" installations. The second book is an illustrated price list which is similar in all major physical details, with the sole natural exception of the addition of prices which are printed in color.

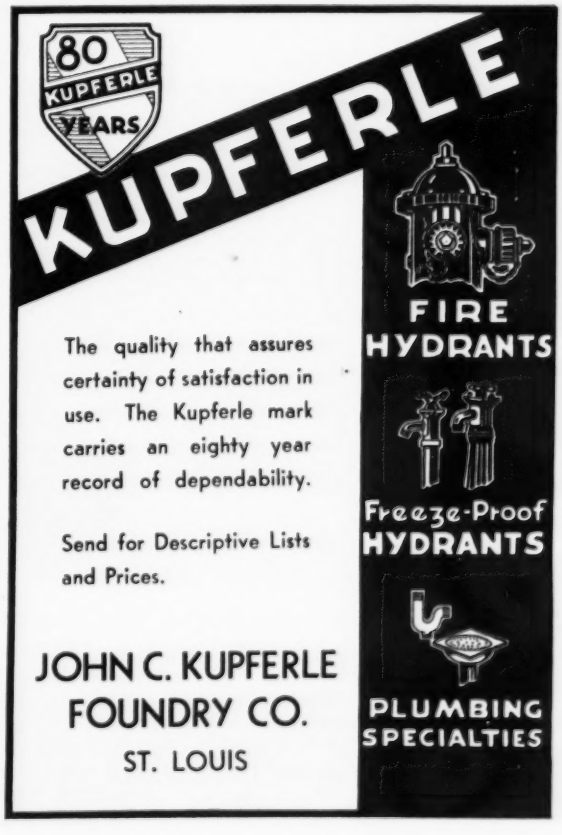
Illustrated Catalog on Boilers and Radiators

Sixty-eight are the number of pages in the new catalog just issued by United States Radiator Corp., Detroit, Mich. This catalog is printed in four colors on glossy paper measuring 8½ by 11 in. and is bound in a heavy, rough-surfaced paper. The sections which describe the company's line of "Capitol" boilers (about two-thirds of the book) gives, for each boiler, an exterior view in colors and another view showing the flame and hot gas travel in the boiler. Important features of construction are described and tables and drawings pertaining to dimensions, assemblies and ratings for each boiler are likewise included. The remainder of the catalog covers radiators and convectors. Besides illustrations of the units themselves, views of tasteful interior arrangements of rooms are given. Complete tables of specifications and dimensions round out this section.

Oil Burner Literature

Wayne Oil Burner Corp., Fort Wayne, Ind., has just issued a new four page, 8½ by 11 in., three color folder pertaining to its oil burner and new Winter air conditioning unit. Eight features of construction of the oil burner are listed and four of the features are both described and illustrated. The air conditioning unit is likewise illustrated and its features and method of operation described in detail.


STEAM
HOOK-UPS
SARCO
Yrs it contains the information you have been looking for:—Hook up drawings, calculation data and illustrations of steam accessories for connecting up heating, air conditioning process equipment, and hot water control. Yours for the asking.
14
COMPLETE SYSTEMS FOR HEATING AND INDUSTRY
SARCO
REPRESENTATIVES IN ALL PRINCIPAL CITIES
THERMOSTATIC, FLOAT AND BUCKET TRAPS, REGULATORS AND HEATING SPECIALTIES
SARCO COMPANY, Inc., 183 MADISON AVENUE, NEW YORK, N.Y.
SARCO CANADA LIMITED, FEDERAL BLDG., TORONTO, ONT.


80 KUPFERLE YEARS
KUPFERLE
FIRE HYDRANTS
The quality that assures certainty of satisfaction in use. The Kupferle mark carries an eighty year record of dependability.
Send for Descriptive Lists and Prices.
Freeze-Proof HYDRANTS
JOHN C. KUPFERLE FOUNDRY CO.
ST. LOUIS
PLUMBING SPECIALTIES

Seamless Metallic Bellows Discussed

"Hydron Metallic Bellows" is the title of the 44 page, 8½ by 11 in. catalog just issued by Clifford Manufacturing Co., 564 East First St., Boston, Mass. It is bound in a glossy paper cover and is completely illustrated. The history of the metallic bellows, its characteristics and properties and special types of bellows are covered in the first section of the booklet. One of the illustrations shows drawings of the standard types of the company's bellows and the methods of attaching the end fittings. This illustration is accompanied by a full page of descriptive matter. Other departments and sections in the booklet include: life prediction chart for bellows; instructions for ordering; assembling and soldering and cleaning; assemblies for remote control of temperatures; steam trap bellows; and coefficients of cubical expansion. One of the features of the booklet is an 11 by 32 in. inserted vapor pressure—temperature curve. Four other tables are included.

Plumbing Supply Catalog

The Paine Co., 2947 Carroll Ave., Chicago, Ill., has just issued a new 32-page, spiral-bound catalog covering its line of electrical, hardware, plumbing, and mill supply specialties. The catalog is thoroughly illustrated and is printed in two colors. Tabbed page edges indicate the contents of each section of the catalog. Besides illustrations of the equipment proper, many views are given which instruct the purchaser in the use of the equipment.

List prices for various items and tables of dimensions and weights are another feature of the booklet. The cover is made of heavy rough surfaced black paper and the front cover is imprinted in aluminum.

Refractory Handbook and Catalog

"Modern Refractory Practice" is the title of the 8 by 11 in. handbook, technical review and catalog just issued by Harbison-Walker Refractories Co., Pittsburgh, Pa. The book is bound in a rigid, imitation leather binding. While it follows the general lines of the first edition, published in 1929, the book has been rewritten and increased in size from 180 to 296 pages. Sixteen full page furnace drawings have been prepared on the basis of current industrial practice. These drawings show in detail the standard types of refractories used at every point, as well as alternate types used to meet special conditions of operation.

A discussion of the particular problems which are encountered in the use of refractories in each type of furnace is also included. One complete chapter is devoted to suggestions of a practical nature regarding the selection, care and use of refractories, including ordering and handling brick, bonding methods, the best ways to provide for thermal expansion, arch construc-

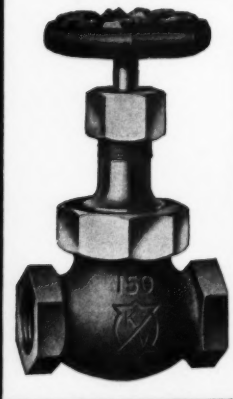
Made for Long Rugged Service

Boiler Tube Cleaners, Flue Brushes, Wire Heater Brushes, Handy Cleaner Brushes, Fire Brooms, Track Brooms.

Tempered Steel
The Worcester line is complete.
Catalog gladly sent upon request.

WORCESTER BRUSH and SCRAPER CO.
10 AUSTIN STREET WORCESTER, MASS.

For DEPENDABLE Valve Service



ENGINEERS who have used Kennedy Valves know that they are thoroughly reliable in every respect. Every Kennedy Valve type can be depended upon to close tightly, open easily, and give lastingly good service. You are safe when you standardize on Kennedy. Descriptive bulletins sent on request.

The Kennedy Valve Mfg. Co., Elmira, N. Y.

KENNEDY
VALVES-PIPE FITTINGS-FIRE HYDRANTS
BUY KENNEDY PRODUCTS FROM YOUR LOCAL DEALER

tion, design and placement of skewbacks and factors affecting service life. Among the many other features of the book meriting attention are: new arrangement of formulas for calculating brickwork; list of standard and special types of refractories; and a glossary and selected list of minerals and rocks. The price of the book is $2.50, but it is offered without charge to users of refractories.

Catalog on Diaphragm Operated Valves

"American Diaphragm Motor Valves" is the title of the 7¾ by 10¾ in., 22 page catalog recently issued by Consolidated Ashcroft Hancock Co., Inc., Bridgeport, Conn. The booklet is well illustrated, is printed in two colors, and has a four color, glossy paper cover. Eight pages of the catalog are used to describe eight types of diaphragm motor valves—one type to a page. Two illustrations of each valve are given, a sectional view and an exterior view. Also given on each of the eight pages is a table of valve body dimensions for the particular valve described. An air and gas capacity chart, a steam capacity chart, and a liquid capacity chart are among the tabular data which are included in the catalog as supplementary information.

Broadside on Pressure System

Bell & Gossett Co., 3000 Wallace St., Chicago, Ill., has just issued a six-page broadside discussing its "tank in basement" pressure system. The booklet measures 8½ by 11 in., is printed in two colors and is perforated for loose-leaf insertion. Two of the illustrations given show two types of this system, the "Simplex" system and the "Self-filling" system. A half page of descriptive matter pertaining to each system is included directly beneath the illustration of the particular system discussed. One page is completely devoted to four tables of sizes and capacities of the two systems mentioned above, the "Simplex" air cushion compression tank, and the B & G air cushion compression tank.

Two New Air Conditioning Booklets

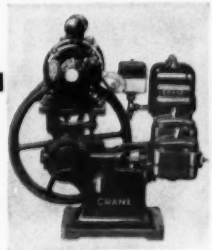
American Radiator Company, 40 W. 40th St., New York City, has recently issued two new catalogs. The first is a four-page, 8½ by 11 in. illustrated folder describing its series "RH" Air Conditioner for year-round air conditioning. Two views of the unit are illustrated with photographic reproductions and an installation drawing indicating the location of the various parts of the unit. Paragraph headings include: function; application; features; general construction; installation; and control. Three tables covering the capacity (heating and cooling) of the unit are included. The second folder consists of twelve pages of illustrations and descriptive material and is printed in three colors. The folder lists six benefits accruing to the user of air conditioning equipment and illustrates and describes three types of heating systems, namely, radiator heating system, boiler type split

Do You Know the Market That Rides THE 5:15?

● A lot of people in this broad land are getting tired of city noise and congestion. They are moving out into the rural areas—where the air is pure, but where there are no water mains. That makes them prospects for Crane Water Systems . . . and immediately establishes a profitable opportunity for YOU.

Crane Deep Well and Shallow Well Pumps, too, fit right into the rural electrification program. They are *easier to sell* because they bear the famous name of "Crane". . . because installation is simple . . . because they have advanced features that assure long life and low upkeep. And, remember, once you sell a Crane Pump, the way is open for a complete installation of plumbing and heating!

Decide—now—to get your share of Water System profits next year. Complete information about Crane Water Systems is yours for the asking. Consult your Crane branch—there is one near you.



Crane Shallow Well Pump

Crane Deep Well Pump

CRANE

CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVE., CHICAGO, ILL.

Branches and Sales Offices in One Hundred and Sixty Cities

VALVES, FITTINGS, FABRICATED PIPE, PUMPS, PLUMBING AND HEATING MATERIAL

Here's the Flexible Connector Header Heater which is sold separately or as part of the standard equipment for Burnham Cast Iron Jacketed Boilers.

Hank Tells About Another Burnham Improvement

(The Header-Heater)

Ain't it your notion, it cums close to being alfired smart when you can do one thing so it'll do two, and maybe sometimes three?

Now take boiler headers for Summer-Winter hot water. There ain't no sense in talking about why you use 'em. So let's get-a-going at why you make work fur yourself using 'em, when you needn't at all.

So fur as you can recollect, did you ever see a header being put on, that the boiler tappings was all lined up so pretty that the connectors screwed up easy as, well, greased lightning?

According to records, there are few jobs about installing a boiler that has caused more Hellin' and damnin'. And t'wus allus merited.

The Boss got to thinkin' how too bad so many good fellers—some of 'em church goers too, wus losin' their religion over headers. So he got himself busy overcomin' it. Did it with making an assembled header with flexible connectors or couplings. And it turned out to be an answer to prayer.

Then one day around quittin' time it hit him, that why wouldn't it be a smart idea to have the header doin' a job of hot water supply heatin'.

So he made the header larger, and got the Taco folks to make a special high-powered heatin' coil to fit in it. The gol durn thing worked so alfired good, the Boss got another brain storm, resultin' in our now makin' this Header Heater a direct part of the cast iron jacketed boiler's equipment. 'Course the headers are sold separately too.

So now you see plain as day how Burnham makes one thing do two things and even three which is plenty enuff.

HANK HINDLE

BURNHAM BOILER CORPORATION

Irvington, New York Zanesville, Ohio

Manufacturers of Heating Equipment Since 1873

Burnham Boiler

system, and furnace type hot air system. It then describes how the company has combined the advantages of radiator heat and boiler-type warm air heat in one system. This is also illustrated. Remaining pages are devoted to descriptions of other products manufactured by the company.

Humidifier Literature for Dealers

Van Osdol Manufacturing Co., 133 West 46 St., Indianapolis, Ind., has just issued a new piece of trade literature on its humidifier. The folder contains six pages, is 8½ by 11 in. in size, and is well illustrated. Besides listing the advantages accruing to the dealer who handles the humidifier, the booklet also explains the function and construction of the device. Four line drawings show how the unit should be installed in steam, hot water and warm air systems, and a cut-away view of the unit shows the features of construction. List prices and other pertinent data are given in a separate section of the catalog.

Bulletin on New Stack Switches

Penn Electric Switch Co., Goshen, Ind., has just issued a new four-page, loose-leaf insert presenting its new type of stack switch. This folder tells of the improved features of this switch in several paragraphs of descriptive material and in one illustration shows several detailed line drawings of some of the outstanding design and construction features. Four wiring and internal circuit diagrams of the switch are presented in another drawing. The bulletin measures 8½ by 11 inches and is printed in two colors.

Plumbing Products Literature

"Johns-Manville Products for the Plumbing and Heating Industry" is the title of the 8½ by 14 in. catalog recently issued by Johns-Manville, 22 E. 40th St., New York City. Features of this 16 page booklet are sections dealing with pipe coverings, range boiler jackets, warm air duct insulation and boiler and furnace insulation. Information on the company's products for the plumbing and heating industry is given, with special data on flue pipe, refractory cements and packings included in the catalog. It is well illustrated and the cover is printed in two colors.

Water Cooling Equipment Catalog

Binks Manufacturing Co., 3114 Carroll Ave., Chicago, Ill., has just issued a new catalog on the various pieces of equipment making up its line of spray cooling units and fittings. Four separate catalogs are bound in a green, heavy paper cover. The titles of the several folders are: Atmospheric Spray Cooling Towers; Indoor Forced Draft Cooling Towers; Type "K" Induced Draft Spray Cooling Towers; and Spray Nozzles for Water

Cooling and All Industrial Applications. Descriptions of the equipment, tables of capacities, and complete illustrations are given in the three folders covering the spray towers. Sectional views, illustrations of applications, and line drawings are among the features of the fittings catalog. Each folder measures 8½ by 11 in. and is printed in two colors.

Literature on Connecting Units

Colonial Stove Co., Philadelphia, Pa., has just issued two new folders describing its connecting unit for gas ranges, gas heaters, gas refrigerators, etc. The first is a four page, 3¼ by 6 in. folder, which besides describing the many uses to which the connectors may be put, also gives instructions for the use of and the sizes in which the connectors are available. The second catalog is an 8½ by 11 in., four page folder which illustrates the uses of the connector and gives eleven testimonial statements made by various representative members of the industries using the device.

Industrial and Domestic Stokers Described

Kol-Master Corp., Oregon, Ill., has just issued two new folders describing its line of stokers. The folders measure 8½ by 11 in., are well illustrated, and contain eight pages each. The folder which covers the company's domestic stoker tells, in simple, non-technical language, the story behind the stoker. It selects certain features of the stoker and with drawings and written descriptive material shows why this or that particular thing is of advantage to the purchaser of this stoker. The folder devoted to the commercial types of stokers is written in slightly more technical language and the description is more detailed. Drawings are, however, employed effectively, and photographs are likewise used to supplement the written description.

Literature on Modern Showers

Speakman Co., Wilmington, Del., has just issued a new, two-color broadside describing its self-cleaning shower head. The broadside measures 3 by 6 in. and contains eight pages. A sectionalized view of the shower head is included in the two middle pages of the folder and is accompanied by a listing of the advantages of the head and a complete description of its method of operation. Other illustrations include installed view of the fixture, and three views of: first, the normal shower spray; second, the needle shower spray; and third, the flood shower.

Catalog on Brass Goods

H. B. Sherman Mfg. Co., Battle Creek, Mich., has just issued a new 57 page, illustrated catalog. The catalog deals with all types of brass goods manufactured by

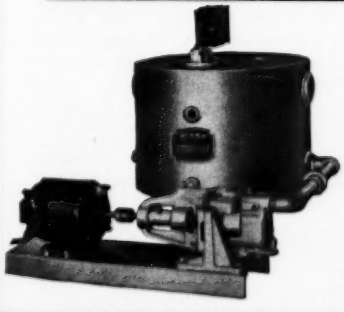
You Too!

CAN INCREASE WINTER PROFITS WITH THE COMPLETE LINE OF CONDENSATION RETURN SYSTEMS BY

BURKS

HANDLES UP TO 18,000 SQ. FT. OF RADIATION

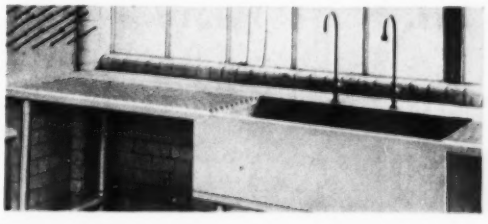
The Sale of BURKS Condensation Return Systems Makes a Year-Round Business for BURKS Pump Jobbers and Dealers



- Only One Moving Part
- Operating Pressures to 80 lbs. per sq. in.
- Impeller and Raceway of Cast Bronze
- Automatically Self Priming
- Balanced Hydraulic Load
- Stainless Steel Shaft
- High Pumping Efficiency Reduces Fuel Cost
- Pumps Air or Water Alone
- Pumps Air and Water to High Pressure

Condensation Bulletin No. 104B Supplied Free Upon Request

DECATUR PUMP CO. — DECATUR, ILLINOIS



SPECIAL SINKS TO FIT ANY SPACE

Non-absorbing and non-staining, Alberene Stone is ideal for sinks and laundry trays. Tongue and groove joints with hidden bolts, permanently cemented, have the strength and tightness of one-piece units.

Alberene is acid-, heat-, and wear-resisting. It can be shaped, sawed and fabricated in any desired shape or form.

Order Alberene Sinks of any dimensions to fill any desired spaces. Shipment will be made within one week from the receipt of order and complete details as to sizes, openings, etc.

Write for special price on the Alberene 44" Laundry Tray, plain and in Duco colors.

ALBERENE STONE CORP. OF VIRGINIA
419 Fourth Avenue, New York, N. Y.
Quarries and Mills at Schuyler, Va.

ALBERENE STONE SINKS • TRAYS

the company. Among the items of interest to the plumbing trade are compression lawn faucets, compression faucets, double sink faucets, compression lavatory faucets, double lavatory and shampoo fixtures, beauty parlor shampoo fixtures, compression bath faucets, double laundry tray faucets, double shower valve, double shower fixture, valves, fittings, and shower heads. Tables of dimensions and prices of brass fittings are included in the booklet. The catalog measures 8½ by 11 in., is well illustrated, and has a heavy paper cover.

Copper Alloy and Steel Pipe Catalog

Wheeling Steel Corp., Wheeling, W. Va., in its new 8½ by 11 in. catalog describes its copper alloy and steel pipe and the methods employed in its manufacture. The booklet is printed in two colors and is well illustrated. Under "Pipe Trade Customs," "Mill Practices," and "General Notes" is given information pertaining to the way in which an order is handled, how pipe is measured in the mill, how weights are figured, and similar information which concerns the purchaser. The remainder of the 31 pages is devoted to tables of weights and dimensions of various types of pipe.

Ionizer for Air Purification Described

Two new, 3¾ by 8½ in. broadsides have recently been issued by Norwood Filtration Co., Florence, Mass. Each of the folders is devoted to a description of the company's ionizing machines for domestic and business use.

The folders are well illustrated and printed in three colors, and are similar in content with the exception that one describes the uses of the ionizers in the home and the other its part in offices, restaurants and hotels. Three models of the unit are shown and the story of what it will accomplish, how it will accomplish it, and where to use it is told in the descriptive matter.

Book on Lubrication

"The Practice of Lubrication" is the title of third edition of a book just published by McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York City. It contains 638 pages including the appendix and the index and is bound in a green cloth cover. The price is $6.00. The book is well illustrated with half-tone reproductions and drawings. The practice of lubrication is approached in the book both from a chemical angle, and from a practical viewpoint. First considered are the various types of lubricants, such as the semi-solid, solid, fixed oils and fats, and mineral oils. Then come discussions on the testing of lubricants, laws of friction, and lubricating appliances. The latter half of the book is concerned with the more detailed problems of lubrication of different types of mechanisms. Among these are steam turbines, machine tools, marine engines, transmission shafting, gas and gasoline engines, and air compressors.

CITIES IN ARMS OVER DRY TRAPS

America is fighting the menace of foul gases and disease-carrying vermin which invade homes from the sewer.

Require Trap Seal Valves

More than one-half the major U. S. cities recently surveyed have adopted measures insuring protection against dry drain traps.

This means business for you . . . profitable business. The only sure protection against sewer menaces is the Phillips Automatic Trap Seal Valve. Stock this valve and sell it aggressively. You sell the valve at $5 retail and get an installation job of from $5 to $15. Order sample valve and display poster now.

Phillips AUTOMATIC TRAP SEAL VALVE

PHILLIPS CORP., 806 S.W. Broadway, Portland, Oregon.

☐ Send me Display Poster.

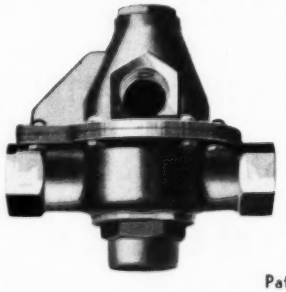
☐ Send me_____ Phillips Valves at $3.50 each through_____ (My *plumbing wholesaler*)

My name_____

My address_____

Announcing

A New Member Of The Family



Pressure Regulator and Relief Valve

Patented and Patents Pending

A single, sturdy, reliable valve which combines the functions of pressure regulation and relief. Automatically fills the hot water heating system including radiation; then relieves excess pressure from expansion. Eliminates attic expansion tank. Keeps system filled without attention. No adjustments—factory set to 14 lbs. working pressure and 29 lbs. relief pressure, or special settings if desired. Capacity sufficient for 4 suite apartment.

Heavy cast bronze body—laminated phosphor bronze diaphragm (no rubber to rot)—Monel springs. Meets requirements of all states.

Write for literature.

When You Think of Brass, Think of Consolidated First

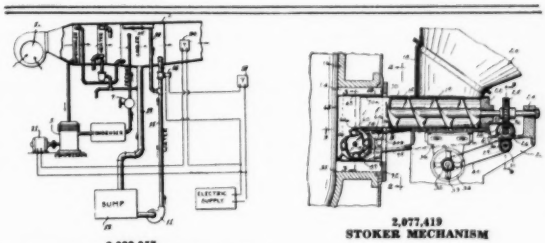
CONSOLIDATED BRASS CO.

138 Summit Ave. Detroit, Mich.

NEWS *of* PATENTS

Heating

2,082,957. Air Conditioning System Utilizing Refrigeration. Frank J. Hamilton, Chicago, Ill., and Samuel M. Anderson, Sharon, Mass., assignors to B. F. Sturtevant Company, Inc., Boston, Mass.



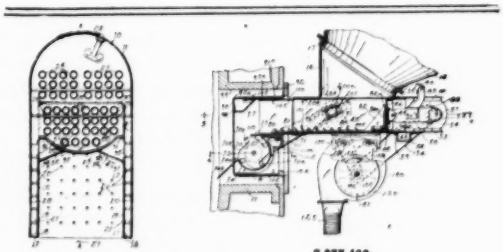
2,082,957
AIR CONDITIONING SYSTEM UTILIZING REFRIGERATION

2,077,419
STOKER MECHANISM

2,077,419. Stoker Mechanism. Herman L. Kraeft, Cleveland, Ohio, assignor to The Murray Ohio Manufacturing Company, Cleveland, Ohio, a corporation of Ohio.

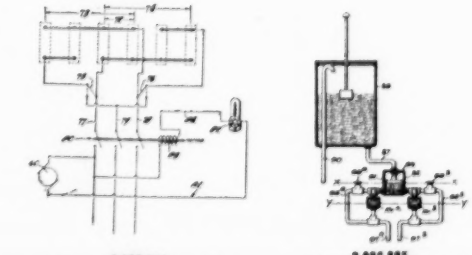
2,086,885. Liquid Fuel Burner. Rallston M. Sherman, Glastonbury, Conn., assignor to The Silent Glow Oil Burner Corporation, Hartford, Conn., a corporation of Connecticut.

2,079,503. Boiler. Alpheus C. Grist, Chattanooga, Tenn., assignor to Horace H. Peek Sr. Chattanooga Tenn.



2,079,503
BOILER

2,077,420
APPARATUS FOR STOKING FURNACES



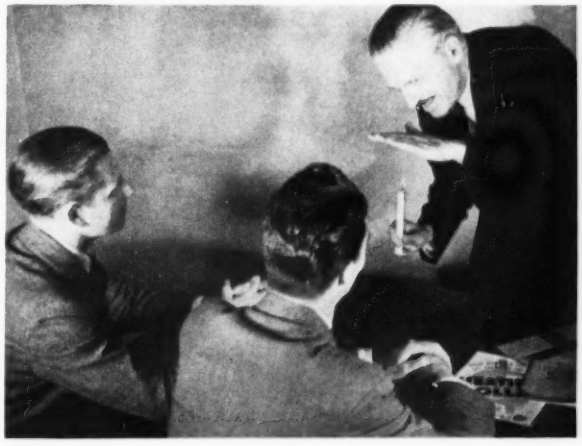
2,080,797
AIR CONDITIONING APPARATUS

2,086,885
LIQUID FUEL BURNER

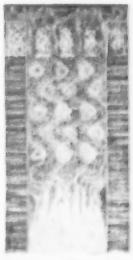
2,077,420. Apparatus for Stoking Furnaces. Herman L. Kraeft, Cleveland, Ohio, assignor to The Murray Ohio Manufacturing Company, Cleveland, Ohio, a corporation of Ohio.

2,080,797. Air Conditioning Apparatus. Edwin L. Wiegand, Pittsburgh, Pa., assignor to Edwin L. Wiegand Company, Pittsburgh, Pa., a corporation of Pennsylvania.

THIS SIMPLE EXAMPLE



Makes it Easier to Sell the Koven WATERFILM BOILER



Cross section view shows how the generators placed above and at right angles to the combustion receive maximum heat—just as does your hand over a candle.

Hold your hand above and at right angles to a lighted candle. Notice that the heat is more intense in this than in any other position.

This same principle is embodied in the KOVEN WATERFILM BOILER where the generators containing a ¾" film of water are placed above and at right angles to the combustion. It is only necessary to heat this small percentage of boiler water to produce heat.

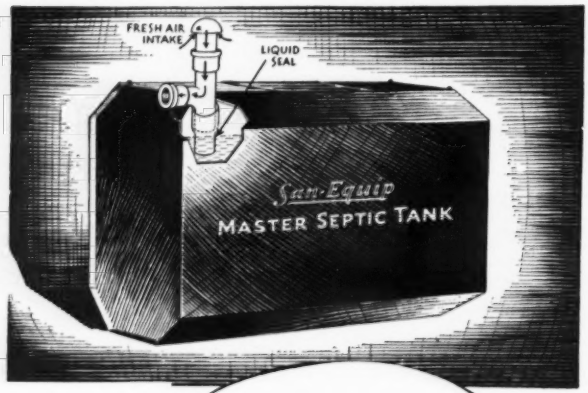
It's a simple test but a convincing one. It will make your selling job easier. Show it to your customers. Show it to your salesmen. Then it's easy to understand why the WATERFILM BOILER can give such an efficient heating performance with maximum economy.

The Deluxe jacket designed by Gustav Jensen, makes a WATERFILM installation one of the most beautiful and compact obtainable. Constructed of fire box steel and built by KOVEN, the WATERFILM BOILER assures your prospects the finest in heating satisfaction.

Detailed information and catalog gladly sent on request.

WATERFILM BOILERS, INC.
Jersey City, New Jersey
A KOVEN PRODUCT

This Better Tank is EASIER to SELL



and gives you
More Profit
on Every Job

The San-Equip MASTER

THE San-Equip Master Tank is a proved profit leader with exclusive advantages that take it out of the reach of cut-price and mail order competition—advantages that customers want and will buy readily in preference to others.

No other tank offers its safety . . . its dependability . . . its ease of servicing.

It greatly reduces installation costs. Saves ¾ of the digging ordinarily required. Saves servicing trouble, too. Your net profit is higher on every job.

New top intake reduces clogging danger . . traps and vents the house line automatically. Permanently marks the location of the tank and gives quick, easy access to intake baffle without digging.

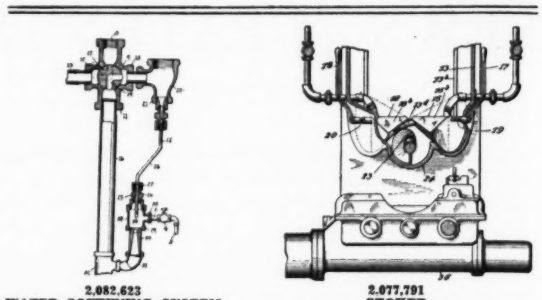
If your regular jobber does not stock San-Equip Master Tanks, we will ship from nearest stock for customer's approval, billing you later as you instruct. Write for free descriptive booklet—learn how easy it is to sell the better Master Tank.

San-Equip Inc.

611 E. Brighton Ave. Syracuse, N. Y.

Vertical Septic Tanks . . . . . Drain Pools
San Solvent . . . . . Waterless Toilets

WRITE FOR INFORMATION ON ALL ITEMS LISTED

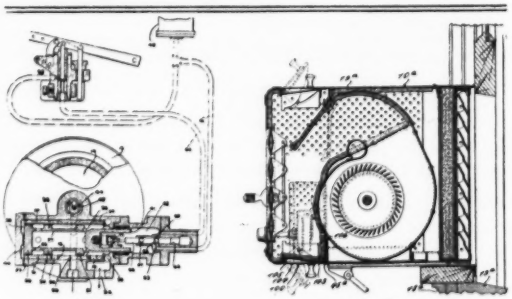


2,082,623
WATER SOFTENING SYSTEM

2,077,791
STOKER

2,082,623. Water Softening System. David B. Gauss, Kalamazoo, Mich., assignor to H. L. G. Company, Kalamazoo, Mich.

2,077,791. Stoker. William Thompson Hanna, Cincinnati, Ohio.

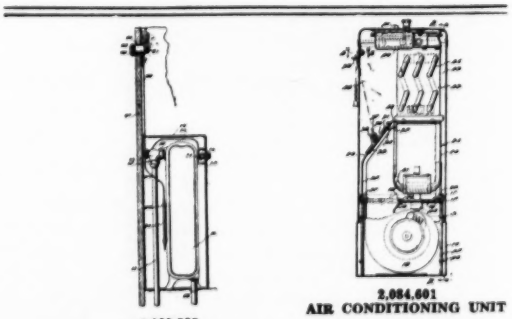


2,080,839
STOKER DRIVE

2,081,104
AIR CIRCULATING APPARATUS

2,080,839. Stoker Drive. Earll R. Stone, Lansdowne, Pa., assignor to Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., a corporation of Pennsylvania.

2,081,104. Air Circulating Apparatus. Fowler Manning, Bronxville, N. Y., assignor to American Radiator Company, New York, N. Y., a corporation of New Jersey.



2,082,883
TEMPERATURE CONTROL MECHANISM FOR HEATING SYSTEMS

2,084,601
AIR CONDITIONING UNIT

2,082,883. Temperature Control Mechanism for Heating Systems. Jean V. Giesler, Knoxville, Tenn., and William B. Mackintosh, Youngwood, Pa., assignors to The Fulton Sylphon Company, Knoxville, Tenn., a corporation of Delaware.

2,084,601. Air Conditioning Unit. Allen C. Staley, Birmingham, Mich., assignor to Chrysler Corporation, Highland Park, Mich., a corporation of Delaware.

Court Decisions—

(Continued from page 86)

That was the set of facts recently brought before the Maryland courts. The boy had been riding his bicycle across the flying field, along a formerly used road, and was killed by an airplane as it glided to the ground.

The court exonerated the store of all liability, saying:

"As to the owners of the store, there was no liability as a matter of law, since while the store's advertisements had referred to the air circus which followed the toy balloon contest, the store owners had no connection with the air circus, and there was no ground for inference that the store owners or management had any authority or control over the operations on the field during the latter performance." (State vs. Sammon, 189 Atlantic Reporter, 265.)

Christmas Displays—

(Continued from page 85)

ing some special form of Christmas store and window displays. There never can be too much attention devoted to this subject during the Christmas season. First, all other businesses are doing specialized jobs in this connection and, therefore, putting up a highly competitive battle for consumer attention. Second, the average Christmas shopper goes out with the idea that he will gain some inspiration on what to buy from the windows he passes and the stores he enters.

It has proved out in actual practice that the greater the effort expended on displays during the Christmas season, the greater the volume of sales has been. Department stores in metropolitan areas spend really amazing amounts on their Christmas displays. This action is taken on sound merchandising basis, since those in charge of department store merchandising have stated time and again that the money spent on Christmas displays has a higher return in sales made than an equal amount spent at any other time during the year.

It is not necessary, naturally, for the plumbing and heating contractor-dealer to provide as elaborate displays as it is for a department store. It is within his power, however, to provide a Christmas display with effective, proved sales pulling power at very little cost or effort. Now on the market are several stock display backgrounds which have the ability to dress up a business establishment to a high degree.

The chief test of a display's effectiveness, and this holds true whether it is a show window or a showroom display, is whether or not it provides an effective background for the products which are to be sold. After all, the main idea in using a window or showroom display is to sell products. In other words, the display's job is to call attention to the products to be sold and to suggest their selling points. Anything beyond this takes away, rather than adds to, a display's effectiveness. This, therefore, brings up an added fact—a display must be attractive, but not too attractive; it must be able to catch attention, but it also must be able to carry over that attention to the products whose sale is desired.

We Appreciate The Fact That You Sell Never Split Seats Only To Master Plumbers
FINISH Won't Crack, Chip or Peel
SEAT Won't Split, Warp or Come Apart In Joints

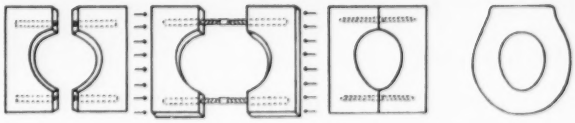


Illustration shows the "steel screw" construction of Never Split Seats. Hydraulic pressure forces sections together, where they are locked tight by an eight inch steel screw.

RIGHT..MR. GEORGE

Only Master Plumbers Can Cash In on These Features!

C. M. GEORGE, of Lohman Bros., Plumbers, Los Angeles, Calif., uses Never Split Toilet Seats as proof that the place to buy quality plumbing supplies is from a Master Plumber. No other toilet seat has the split-proof, chip-proof features assured by Never Split's superior finish and "steel screw" construction. And only Master Plumbers can sell it. You'll find Never Split Toilet Seats a splendid door-opener to new contracts and new customers. Get them in all varieties of finish and color from your wholesaler.

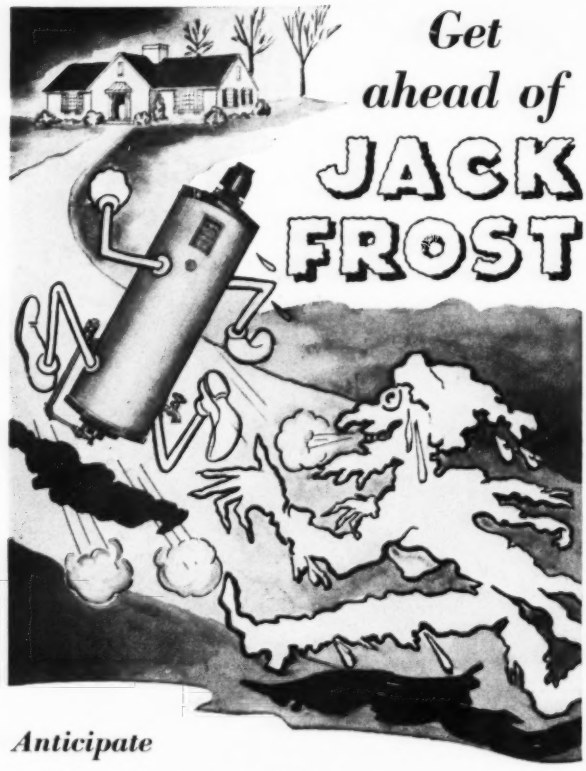
EVERNU Hard Rubber Seats

—have been used for years by prominent hotels, institutions, schools, public buildings, etc. Practically indestructible. Your wholesaler can supply you.

NEVER SPLIT Toilet Seat

NEVER-SPLIT SEAT CO. — Dept. R-11 — Evansville, Ind.

SOLD ONLY BY MASTER PLUMBERS



Anticipate
cold weather demands
by offering your customers Whitehead* Monel Heaters and Range Boilers . . .

BEFORE Jack Frost lays his icy hand on your customers, see that they have a dependable supply of clean hot water. Call on the folks you know—and offer them Whitehead tanks.

A Whitehead Monel Range Boiler or Automatic Gas Storage Heater with Monel Tank, as you know, brings years of satisfactory hot water service to your customer. But do you realize what it brings *you?* It brings you an extra profit that's *easy to make right now.*

For right now folks are starting their heating systems. That's when they run into trouble. And once it's corrected they want no more grief . . . with heat *or* hot water. So they're ready to buy—will order a Whitehead boiler or heater if you simply show them they need it. For this reason:

Home owners the country over know Whitehead products. Know Monel, too. Whitehead and Monel National Advertising both have told them about this longest-lived of household metals. They know Monel is actually harder and tougher than *steel.* And they know that Monel is not merely rust-proof—they know it *cannot* rust. And resists corrosion so stoutly that Whitehead Monel tanks are guaranteed for *twenty years.*

Because they know these things, home owners everywhere want Whitehead Monel hot water equipment. So capitalize on this demand right in your own neighborhood. If you need more information, or a supply of folders, simply address:

*Reg. U.S. Pat. Off.

WHITEHEAD
METAL PRODUCTS CO. OF NEW YORK, INC.
304 HUDSON STREET NEW YORK, N. Y.

Elsewhere in this article are reproductions of displays which answer all essentials. These displays have been selected from a wide selection of stock displays on the following points: adaptability to the sale of plumbing and heating products; flexibility in size; color; durability; simplicity of construction; and shortness of captions.

While the reproductions of these displays are shown in one color only, the displays themselves use several different colors. Color and effective use of color are absolute essentials in the makeup of a good display. The way in which color is selected and used in combinations either can make a display valuable or an actual detriment to product sales. It is sufficient to say that the displays which illustate this article are the products of a recognized firm of display experts and that the colors selected in their manufacture is the result of several years of research on that subject alone. Attractiveness and pulling power have been the two reasons for the selection of colors that have been used. Naturally the colors used conform to the Christmas season, but they have been handled so they assure attention.

This is still another display in the group selected. This view shows how the displays are packed with the supporting members being cut from the mailing case

Of course, color can be used in such large quantities on a display or a combination of clashing colors can be employed which will attract attention because of its amount or garishness, but such color usage cannot hold attention of passersby nor can it transfer that attention to the products which are on display. This brings up the added point that while color in window displays is used chiefly to attract attention, there are several other equally important factors which must be observed in its selection. Above all, it must not make the display clash with the products which it is intended to sell. That, too, has influenced the selection of the hand picked grouping of displays which are presented this month.

Care must be used in the selection of stock displays, naturally, to insure their adaptability to the type of business in which they are to be used. One display which might have excellent pulling power for a clothing store would not have the same degree of effectiveness in a plumbing and heating shop. Size, decoration and subject matter all enter into this problem. The displays which have been selected for our industry's use during the Christmas season have all the elements necessary for

effective presentation of plumbing and heating products. In most instances the displays incorporate table bases in their design. These can be used for the display of small products such as swingspout faucets while fixtures can be grouped around the display.

Fairly large masses of color against which products will stand out in bold relief are present in all of the displays. It is readily apparent that if the display background consists of small, broken up masses of color, products displayed in front of it will not have a sharp, clear appearance to passersby and may be overlooked entirely.

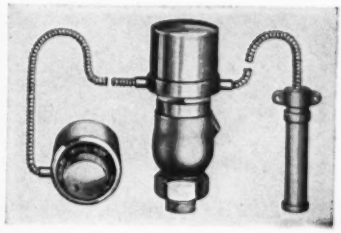
The display shown here is for fairly large areas and consequently is suitable for the display of a wide variety of products

In selecting a stock display naturally it is sometimes difficult to get one which will fit into the space desired. The size of show windows varies widely. Space on the showroom floor may be limited or extensive. There may be instances where a fairly wide area of wall is desired to be covered. For these reasons, a wide selection of sizes has been chosen in these displays. The display which carries the caption: "Gift Ideas" is 7½ ft. wide by 6 ft. high, making it useful in a comparatively large space. The display which carries the slogan, "Solve That Difficult Gift Problem Here," is excellent for small windows since it is only 5 ft. high and 5 ft. wide. The display which represents the window in front of which is placed a burning candle is also for small windows or display areas. Its size is 2 ft. wide by 5 ft. high. For larger areas there are the two displays whose captions read "Gifts for the Entire Family" and "Gift Suggestions." Respectively the sizes are 7 ft. wide by 6 ft. high and 7½ ft. wide by 5 ft. high.

As can be seen from the foregoing, the captions on all of the displays have been kept to a minimum. Experience in the field has shown that the man on the street will not stop to read a large amount of copy on a window display. The caption which is used should, preferably, consist of only a single phrase which can be read easily in the few seconds which a passerby uses to walk past a show window.

All the displays which have been selected can be

• Answer your Temperature Control Problems with this coupon



Remote Control THERMOTROL

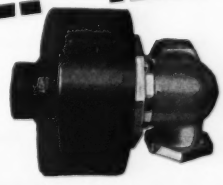
Type illustrated is furnished for installation with valve in vertical or horizontal position—ideal where radiators are in cabinets or concealed in wall. There are types for unit heaters, water tanks, cooking kettles, sterilizers—in fact every application of temperature control as applied to steam or water between freezing and 300° Fahrenheit.

Sterling Engineering Co.
3732 North Holton Street
Milwaukee, Wisconsin

Without obligation, send me detailed information on Sterling Thermostatic Controls for:

☐ Individual Rooms Direct or Concealed Radiation
☐ Air Conditioning
☐ Unit Heaters
☐ Tanks (Any Liquid)
☐ Domestic Water Supply Mixing Valves

Name .....
Firm .....
Street .....
City ..... State .....



Type E THERMOTROL

Pioneer of self-contained Temperature Control Valves

Accurate room temperature control. Controls each radiator individually. For exposed radiators. Fully proved by 30 years of service. Thousands of successful installations.

Sterling
ENGINEERING COMPANY
EST. 1916
3732 N. Holton Street, Milwaukee, Wis.

TRENDS

assembled in a very few minutes and, at the same time, will be rigid and permanent in their final form. The forms around which the displays are placed are made from 24 ply board and give ample strength for the display of small products. The display backgrounds are made from good grade corrugated paper which, in addition, is guaranteed to hold up under strong sunlight without fading or discoloring.

The method followed by DOMESTIC ENGINEERING in selecting these displays was to go to one of the largest display manufacturers in the country and study the displays which were in his list of stock numbers. The displays which are presented this month are the very cream of this manufacturer's stock and have proved value and effectiveness. The use of any one of these displays will do a great deal to dress up a show window or a showroom and will put the contractor-dealer who uses them in a position to capitalize on the Christmas buying season.

PATENTED PATS. PEND.

Architects are continually looking for new ideas to bring added smartness and beauty to bathroom design. You can build them into your plans by specifying the T/N one-piece water closet. Available in a wide variety of colors, the design of the T/N allows you to put it in a corner, beneath a window, even under a staircase. Such flexibility gives you an unlimited range in bathroom planning. Its smart, low lines and features—like non-overflow, and unusually quiet flushing—are bound to win client approval. And remember, the T/N one-piece water closet is priced so you can include it in the most modest of your budgets.

T/N ONE-PIECE WATER CLOSET

For complete information on the T/N one-piece lavatory, and other Case equipment, just write to:

W. A. CASE & SON MFG. CO. **Founded 1853**
33 Main St., Buffalo, N. Y. **Dept. F-117**

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Statement of Ownership and Management of "Domestic Engineering" for October 1, 1937.

The following is a statement of the ownership, management, circulation, etc., required by the Act of Congress of March 3, 1933, of "Domestic Engineering," published monthly at Chicago, Illinois, for October 1, 1937.

State of Illinois, County of Cook, ss: Before me, a Notary Public, in and for the state and county aforesaid, personally appeared D. J. Hansen, who, having been duly sworn according to law deposes and says that he is the Business Manager of "DOMESTIC ENGINEERING" and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, to-wit:

1. That the names and addresses of the publisher, editor, editorial director, and business manager are:

Publisher, O. T. Carson, Chicago, Ill.

Editor, O. T. Carson, Chicago, Ill.

Editorial Director, Wm. W. Gothard, Chicago, Ill.

Business Manager, D. J. Hansen, Chicago, Ill.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)

Domestic Engineering Company, 1900 Prairie Ave., Chicago, Ill.; O. T. Carson, Chicago, Ill.; estate of E. D. Winslow, New York, N. Y.; E. G. Hutchison, Chicago, Ill.; D. M. Kenney, Cleveland, Ohio.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and his affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

D. J. HANSEN,
Business Manager.

Sworn to and subscribed before me this 23rd day of September, 1937.

L. M. DIXON.
Notary Public.

[My commission expires October 18, 1938.]
(SEAL)

Advertising—

(Continued from Page 70)

been arranged alphabetically and by suburbs so that all the Evanston contractor-dealers appear together and all the Winnetka contractor-dealers appear together and so on down the line. At other times the advertisements merely are run over the name of the North Shore Plumbing Contractors Association.

In addition, the various advertisements in the series sponsored by the association appear on the real estate pages of the two papers, and for each insertion of an advertisement, an equal or greater amount of space on the same page has been devoted to an editorial write up on some phase of plumbing or heating. For example, one week's advertisement may appear on the same page with a description of modern kitchen cabinets. The following week the advertisement may be accompanied by a description of modern bathrooms. This practice will be followed throughout the duration of the campaign. All of the editorial write ups are featured by photographs of modern installations.

SMALL COST PER INDIVIDUAL

Naturally one of the advantages of a cooperative campaign such as this is that its cost, when divided among the members of the association, is relatively small. Each member for a very small monetary investment is rewarded with a display advertisement whose cost might be too great for the individual member to stand. Then when the results of the advertising campaign—and they are already making themselves felt—are considered, the actual cash outlay is trifling.

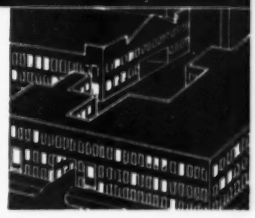
Most of the association's members have used some form of follow up method to augment their portion of the cooperative campaign. A. J. Butow of Evanston uses a church paper for additional selling arguments. He also follows the practice of mailing out, to a selected list of prospects and customers, a blotter each month. These blotters bear his name and address, the type of work he does, a calendar and an illustration.

Other members follow similar courses. Some make use of handbills. Others mail out small memorandum books, but although the form may vary, practically all do some sort of follow up advertising in addition to participating in the association's campaign.

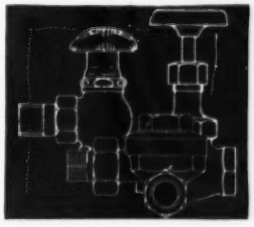
The members of the association who have participated in the campaign are: A. J. Butow, A. J. Chester, E. W. Coel, John Doose, Fred Flader, W. H. Gregg, John Kabel, George A. Kearney, John M. Krejci, H. G. Moore, E. R. Norman and W. Wanzenberg, all of Evanston; C. J. Geiser, A. Hasse and F. Saville, all of Park Ridge; George Meyer of Niles Center; Martin Jacobson, W. C. Lucke, N. J. Mergenthaler and J. Steiner, all of Wilmette; A. S. McKenna Co. of Kenilworth; V. J. Killian, Andrew Park and Sam Steffins, all of Winnetka; A. W. Kyle and C. R. McArthur of Glencoe; A. Otman of Northbrook; Max Finke of Morton Grove; and Glenview Plumbing Co. of Glenview.

The editorial write ups which accompany the advertisements usually are keyed to the message of the advertisement which appears on the same page. Naturally, this adds emphasis both to the advertisement and to the

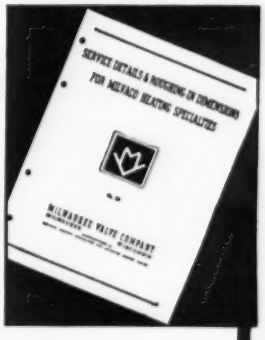
MILVACO



You KNOW THE HOUSE THROUGH MORE THAN A THIRD OF A CENTURY OF BUSINESS DEALINGS . . . . . .



YOU KNOW THE QUALITY OF THE PRODUCTS AND THE READY ACCEPTANCE BY THE TRADE . . . . . .



Now . . . FOR YOUR CONVENIENCE . . . .

A new, more complete, simplified edition reference book of SERVICE DETAILS and ROUGHING-IN DIMENSIONS of MILVACO Heating Specialties...JUST OFF THE PRESS. And it's available to you without cost or obligation.

Jobber's Representatives, Contractors, Consulting Engineers, Architects . . . need this convenient book for quick, easy access to complete detailed drawings of heating specialty installation. Use coupon below to obtain your copy. Requests will be filled in the order received. DO IT NOW!

"SERVICE DETAILS and ROUGHING-IN DIMENSIONS", together with copies of the current issues of illustrated price lists of MILVACO Heating Specialties and Approved Bronze Valves should be on file with every recognized jobber. If, for any reason, your file is not complete, write us. We will send a complete set to you by return mail.

Representatives in Principal Cities.

MILWAUKEE VALVE COMPANY

MILWAUKEE WISCONSIN

CUT ALONG THIS LINE

MILWAUKEE VALVE COMPANY,
Milwaukee, Wis.
Send us ..... copies of SERVICE DETAILS and ROUGHING-IN DIMENSION Books.
We also need ..... copies Heating Specialty Price Lists
..... copies Approved Bronze Valve Price Lists

Name _____

Address _____

City _____ State _____

Eagle wiping solder
needs no doctoring!

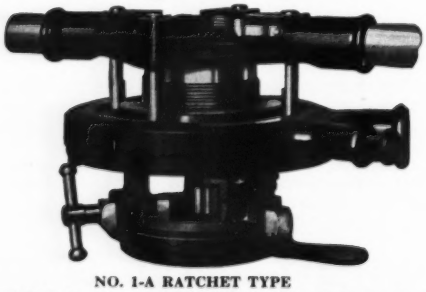
Always works easily...
wipes smoothly . . . sets slowly.

THE EAGLE-PICHER LEAD COMPANY
CHICAGO • JOPLIN • CINCINNATI

FOR YOUR PROTECTION this product is sold only through recognized plumbing supply jobbers — who in turn loyally support master plumbers.

NYE TOOLS
"The Kind You Swear By and Never At"

Receding Stock
(IMPROVED)
With Adjustable Guide



NO. 1-A RATCHET TYPE

The added feature of the Adjustable Self Centering Guide, which eliminates all loose bushings and thumbscrews, makes the improved Nye Receding Stock a most desirable tool.

The No. 1 and 1A Stocks are identical except that the No. 1A as illustrated is equipped with a ratchet for use where space is restricted.

Both stocks have a capacity of from 1 to 2 inches.
No. 1 Complete .....Net $10.80
No. 1-A Complete .....Net $13.50

The NYE Tool & Machine Works
4120-30 Fullerton Avenue, Chicago, Ill., U. S. A.

drive against high cost plumbing and heating propaganda. The buying public is prone to accept the editorial content of a newspaper as gospel and to see the statement in a newspaper that plumbing and heating prices are lower puts on a stamp of approval in the minds of many. How this works out in actual practice can best be shown by the following story which appeared with one of the more recent advertisements. The story was run under the heading: "Plumbing Prices Are 10 Per Cent Under Decade Average."

"While the home building dollar today buys 15 per cent more plumbing and heating than in 1929 and 21 per cent more than in 1926, the real basis for comparison is not in prices but in the greater beauty, durability and improved performance of modern plumbing and heating equipment, says the Plumbing and Heating Industries Bureau.

U. S. FIGURES

"Statistics of the United States Department of Labor show that plumbing fixtures today are selling for 10 per cent less than the average price for the last twelve years.

"Significant as these figures are to the prospective home builder or modernizer, they leave untold the story of the remarkable strides made by the industry in improving every item entering into a complete plumbing installation.

"The glamorous beauty of the modern bathroom, the streamlined efficiency of the cabinet sink with its lusterous surface of porcelain enamel, the durability and trouble free performance of the pipe, valves and fittings concealed in the walls and under the floor of the house—these and many other advances in styling and functional utility tell the real story of the progress the industry has made in giving more and better plumbing for the 1937 dollar.

"Taking into consideration the value received, home building costs today are not high, but on the contrary the home builder is getting values which the industry has never been able to offer before."

"BEFORE AND AFTER"

Another editorial adjunct to the advertising carried by the association was featured by a series of two column "before and after" photographs entitled, "Streamlining the Kitchen Is Modern Practice." The caption under the pictures read: "These before and after pictures show how a North Shore kitchen was brought up to date under the expert direction of a member of the North Shore Plumbing Contractors Association. Keynote in any kitchen improvement program is the sink. Note the handsome new sink with its easy to clean surface of acid resisting enamel and its roomy, accessible steel cabinets. The linoleum top of the matching steel cabinets to the left is joined to the sink by a water tight fitting. With all utensils, provisions and dishes within easy reach, the modernized kitchen is streamlined for efficiency as well as beauty. Today when plumbing fixtures are selling 10 per cent below the average for the last twelve years is the ideal time to replace outmoded sinks with glamorous new equipment."

Still other editorial mention has been devoted to the experience and reliability of the firms in the association. This particular news story made the following state-

ments: "More than two centuries of experience in the plumbing business is represented collectively by the 30 members of the North Shore Plumbing Contractors Association.

" 'The North Shore towns have always attracted workmen of the better class in all the skilled trades, and this is particularly true in the plumbing business,' a spokesman for the association said.

"Inasmuch as incorrect installations may endanger health by permitting pollution of drinking water, cities issue licenses to do plumbing work only to those men who can pass a rigid examination. As a further protection to the public, a city plumbing code prescribes the manner in which plumbing is to be installed.

PROTECTION TO HEALTH

" 'Whereas a correctly installed plumbing system is a protection to health, an incorrectly installed system may be a menace to health. For this reason it is of the utmost importance that every property owner inquire carefully into the qualifications of the man he engages for plumbing work.

" 'Hiring plumbers is like buying eggs. You want a good one or none at all.' "

Still another editorial mention accompanying an advertisement was illustrated with before and after views of a bathroom and titled, "Plumbing Tells Age." The news story went on to say, "An old fashioned bathroom is unsightly and difficult to keep clean. The most obsolete bathroom can be modernized with handsome, streamlined equipment." Another news story on the same page carried the heading: "Fire Hazard Cut by Boiler Water Level Protector."

The editorial material which accompanied the most recent of the advertisements covered the subject of having plumbing systems checked at regular intervals. The write up went on to urge all prospective home owners to have a thorough check of the plumbing system made when buying a home particularly if it is not of recent construction. The suggestion was made in the course of the article that a competent master plumber be employed to check on such details as basement drains and to make sure that no cross connections exist in the installation.

DANGER OF DRY DRAIN

The release continued by saying: "Another source of potential nuisance and danger to family health is dry basement drains. Basement drains are little used, and the water in the U shaped traps tends to evaporate. Dry traps permit entry of sewer gas and vermin into the house. Householders should inspect the basement drain twice a month to make certain the trap is filled with water. Automatic valves which perform this chore are also available and can be installed quickly."

Fred Flader, the association's advertising chairman, is a strong advocate of continuous consumer advertising. To emphasize his point that advertising to be effective must be continuous, he mentioned the advertising methods of large department stores. Such firms advertise day in and day out through busy and slow merchandising seasons. For this reason Mr. Flader has declared that the avertising program now sponsored by the North Shore Plumbing Contractors Association will continue.

An interesting point was developed in the shop of Mr.

Sylvania Hotel, Philadelphia, Pa.

HEATING MODERNIZATION CUTS COAL CONSUMPTION

Sylvania Hotel Saves 260 Tons of Coal in First Year with Webster Hylo System

HEATING COMFORT FOR GUESTS

Philadelphia, Pa.—The Sylvania Hotel reduced coal consumption 260 tons in a single heating season as the result of a Webster Heating Modernization Program carried out in the fall of 1935.

This substantial reduction in heating expense was accomplished in a building only 12 years old by equipping 1,000 radiators with Webster Metering Orifices and applying Webster Hylo Variator Control.

The decision to modernize the heating system in this well-known Philadelphia hotel was based not so much on possible economies as on the opportunity to improve heating service.

The effectiveness of the Webster Hylo System in assuring added comfort for guests is shown in the following statement by Ralph Romspert, Chief Engineer of the Sylvania:

"In two heating seasons, all sections of the Hotel have received steam evenly and rapidly regardless of outdoor weather conditions. Overheating and underheating have been reduced to a minimum."

Before modernization, Webster Engineers estimated that modern heating would save 140 tons of coal per season. During 1935-36, when the degree day load was 17.5 per cent greater than normal, coal savings exceeded the estimate by 86 per cent. For the first five months of the 1936-37 season, when the degree day load was 4.5 per cent greater than normal, coal savings exceeded the conservative estimate by 59 per cent.

The Huffman-Wolfe Co., well-known Philadelphia firm, acted as modernization heating contractors.

These before-and-after facts point the way to maximum comfort and economy in heating new buildings as well as in modernization of existing installations. Consult your architect, engineer or heating contractor. Or address WARREN WEBSTER & CO., Camden, N. J. Pioneers of the Vacuum System of Steam Heating Representatives in 60 principal U. S. Cities — Est. 1888

WEBSTER HYLO SYSTEM

SEE WEBSTER EXHIBIT HEATING & VENTILATING EXPOSITION New York January 24 to 28, 1938

STEP-UP *efficiency of one-pipe systems with*

KELLY VACUUM VALVES

Install KELLY No. 2 Vacuum Valves on radiators and No. 4 or 6 Valves on the ends of mains and risers and vacuumize *any one pipe system.* The special vacuum features of these valves create a vacuum within the system when steam pressure recedes. Since air is not allowed to rush into the system, heat is maintained in the radiators two or three times longer than systems employing ordinary valves. With no air resistance steam will rise and circulate more freely when it is again necessary to generate heat. Countless installations have proved that a KELLY Vacuumized System saves from 25% to 80% in fuel consumption, paying for itself in one heating season. Besides the fuel savings, KELLY Vacuum Valves effect a more even room temperature which insures greater comfort to your customers and bigger profits for you. The KELLY Line is *complete.* Choose from it for every valve requirement. Write for further details.

Above is a cross section view of the KELLY Vacuum Valve. This valve is simple, economical, positive in action.

TRADE MARK KELLY

NATIONAL METAL PRODUCTS CORP. 15-21 N. LOOMIS ST. CHICAGO

Eastern Office and Warehouse: Evins F. Glore Sales Corp., 1939 Grand Central Terminal Bldg., New York, N. Y.

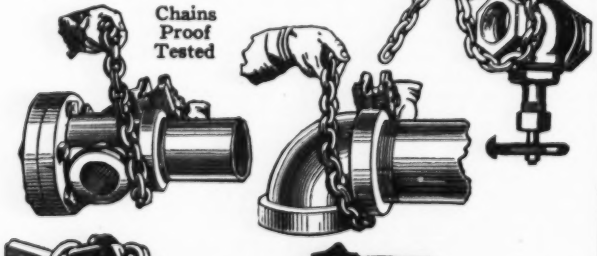
Look for the Arm-and-Hammer

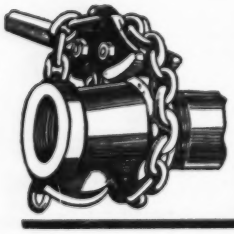
ARMSTRONG BROS.

The Ideal Wrench

Made exclusively by ARMSTRONG BROS. truly ideal for all around uses. Jaws have two biting surfaces. Straight for pipe, "V" for fittings, valves, and narrow or irregular surfaces—takes a 2-point hold on any surface. Extended radius (rocker shape) of jaws take up all chain slack. Jaws are drop-forged from special steel, are hardened, tempered and tested for wearing qualities. All parts are replaceable.

Chains Proof Tested





Chains replaceable instantly with link for screwing flanges.

Write for Circular and Pipe Tool Catalog P-35

ARMSTRONG BROS. TOOL CO.
"The Tool Holder People"
325 N. Francisco Avenue Chicago, U. S. A.
Eastern Warehouse and Sales: 100 Lafayette St., New York
San Francisco London

Flader recently in connection with the present agitation on plumbing and heating prices. An investigation of the company's records on the sale of water heaters was made for the period of 1926 up to the present. This survey showed conclusively that water heaters are selling today at a lower level than they were some eleven years ago. This same basis held true for all the other

GOOD PLUMBING.. for

- ECONOMY!
- SAFETY!
- CONVENIENCE!

Good plumbing pays — in durability, trouble-free performance, freedom from annoyance, and in year after year saving in maintenance.

Quality always pays but most of all in plumbing.

Members of the North Shore Plumbing Contractors Association take pride in their skilled workmen and in the careful supervision they give to all jobs.

For every plumbing job — no matter how small or how big — call a member of the North Shore Plumbing Contractors Association.

NORTH SHORE PLUMBING CONTRACTORS ASSN.

PLAY SAFE WITH GOOD PLUMBING

Reproduced here is one of the newspaper ads which was used by the North Shore Assn. in the "Prices are Lowest Campaign"

lines of products which Mr. Flader traced through his books. In this connection Mr. Flader also mentioned the fact that the products of today are superior in all respects to those of eleven or even seven years ago, so that definitely and conclusively today's purchase of plumbing and heating products constitutes a better bargain than did such a purchase in either 1926 or 1929.

Whys—

(Continued from Page 73)

According to one source book the Btu. value of No. 1, No. 2 and No. 3 oil varies so slightly that it is sufficiently accurate to assume 19,750 Btu. per lb. or 139,000

Btu. per gallon. As different oils vary somewhat even when of the same classification an analysis of the particular oil to be used is the only method of arriving at the exact Btu. value when greater accuracy is required.

Fuel oils today are divided into six classifications consisting of

No. 1 Light Furnace	48 degrees to 36 degrees A.P.I.
No. 2 Medium Furnace	36 degrees to 32 degrees A.P.I.
No. 3. Heavy Furnace	32 degrees to 28 degrees A.P.I.
No. 4. Light Fuel	28 degrees to 24 degrees A.P.I.
No. 5 Medium Fuel	24 degrees to 18 degrees A.P.I.
No. 6. Heavy Fuel	18 degrees to 12 degrees A.P.I.

Theoretically to burn 1 lb. of the No. 1, No. 2 or No. 3 oil requires 14.2 lb. of air but some excess air must be supplied as has been pointed out.

With no excess air the CO_2 developed as shown in the curve in Fig. 1 will be around 15 per cent; with 20 per cent excess air the CO_2 drops to about 12½ per cent and with 50 per cent excess air reaches around 10 per cent. The fall in the percentage of CO_2 as the excess air increases is not due to the generation of less CO_2 but is caused by the dilution of the CO_2 by the larger amount of air so that the per cent of CO_2 in the larger volume of flue gas is reduced.

BOILER EFFICIENCY

The efficiency of the boiler falls as the excess air increases due to the greater amount of air passing through the fire and if this becomes sufficiently excessive the temperature in the combustion chamber and of the flue gases may be increased.

The overall efficiency of the boiler is largely dependent on

(a) The CO_2 percentage

(b) The temperature of the flue gases

for it readily will be seen that the amount of heat absorbed from the fire and products of combustion will result in determining the flue gas temperature while the CO_2 is a measure of excess air which must be heated and carries off some of this heat up the chimney without delivering it into the boiler in the shape of utilizable heat.

Theoretically the combustion chamber should just fit the flame produced by the burner and should have a tendency to turn the flame around the sides back into itself. Practically such a chamber is difficult to obtain owing to the shape of the flame varying with the boiler, draft conditions and other factors.

Volume in the combustion space is a much more important item for without adequate combustion space difficulties are bound to result. The combustion space should contain about 1 cu. ft. for every 1½ to 2 lb. of oil which is burned per hour.

In Fig. 4 is shown a chart which indicates the combustion space required for oil burning both desirable and minimum; thus, 1,400 sq. ft. of steam rating for the boiler would require the burning of about 3 gal. of oil per hour with a combustion space of 15 cu. ft. desirable and not less than 12 cu. ft. in any event as indicated by the leader lines shown on the chart.

The elimination of a draft requirement in gas fired installations makes the use of an interceptor on the smoke

Yet there's No Damage

A smashing blow with a hammer won't injure Fairbanks Asbestos Disc Rings—a more severe test than any ring gets in service. They withstand brutal punishment that would disintegrate ordinary rings because they are reinforced with genuine long-fibred asbestos.

Another thing which prolongs the life of these rings is the design of the Fairbanks Disc Nut which throttles the action of the stream against the disc.

Fairbanks Disc Rings give equally long and efficient service with steam, hot water or cold water, eliminating the necessity of stocking several types.

The slide-on disc holder drops off when valve is taken apart, making it easy to change the disc. Perfect alignment is assured by the radial seat between body and bonnet when the valve is assembled.

Stuffing box can be packed under pressure without danger of leakage because the seat is above the threads on stem where no sediment or foreign matter can reach and pit or score the seating surfaces or prevent tight closing.

Write for Catalog No. 21 describing our complete line of bronze and iron valves.

THE FAIRBANKS COMPANY
Valves, Dart Unions, Hand Trucks and Wheelbarrows
395 Lafayette St., New York, N. Y.
Boston, Pittsburgh — Distributors in Principal Cities
Factories: Binghamton, N. Y.; Rome, Ga.

Fairbanks
Renewable Valves

The Kitchens of Tomorrow are ELKAY Equipped–*Today*

Home owners know that when they build a new home or remodel an old one, it means an investment in PERMANENCE. And they expect that the equipment they install will be MODERN—not only today, but in years to come.

That is why so many of the better kitchens are today equipped with

ELKAY *"Sturdibilt"*
STAINLESS STEEL
Sinks and Tops

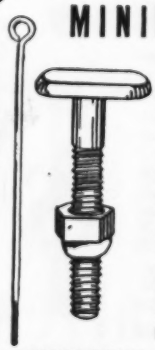
They are built to give a lifetime of Service and Satisfaction—years of enduring charm and beauty.

FREE KITCHEN PLANNING SERVICE

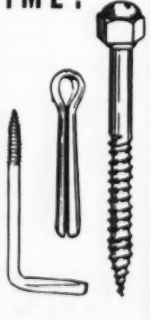
ELKAY Engineers render expert Kitchen Planning Service to Architects, Builders, Contractors, and Plumbers. Send us your specifications and we will submit plans and estimates without cost or obligation.

ELKAY MANUFACTURING CO.
4728 W. ARTHINGTON ST. CHICAGO, ILL.

MINIMIZE LOST TIME!



When you have a FULL supply of HINDLEY'S Plumbers' Specialties on hand at all times you minimize lost time on the job. The HINDLEY line is a COMPLETE line of high quality plumbing specialties that can be depended upon in EVERY emergency. Don't delay. Order a FULL supply of HINDLEY'S . . . today.



HINDLEY MFG. CO., Valley Falls, R. I.

HINDLEY'S *Plumbers'* SPECIALTIES

(vent) pipe necessary. In conversion jobs sheet metal secondary air ducts often are introduced through the ash pit doors, these ducts being equipped with automatic air controls which open when the burners are operating and close when the burners are turned off. This results in eliminating a large part of the circulation of cold air through the combustion space and through the boiler when the burners are not in operation.

A large combustion space is not required for gas firing and it usually is found that the ordinary boiler may be converted to gas firing without difficulty in this respect. The flue may be too large and in some cases is reduced by the insertion of an orifice plate with an opening to suit the size of gas burners used. Automatic shut-off dampers frequently are employed between the boiler and the back-draft diverter arranged to close off when the burner is not operating.

COMBUSTION OF GAS

When the combustion of gas takes place considerable water vapor is produced as one of the products and this is carried off with the chimney gases although containing a certain amount of heat. In testing gas for heat value in the common calorimeter, this water vapor is condensed and the latent heat given up in the process of condensing is reported as forming a part of the heat value of the gas. The heat value of the gas which includes this latent heat is termed the "gross" or "high" heat value of the gas and this is what is meant by the term "heat value" of the gas. If the latent heat is subtracted from the "gross" heat value a "low" or "net" heat value is obtained.

In any type of combustion the chimney is a most important factor; it must have sufficient area to carry off all products of combustion and must have sufficient height to produce the necessary draft and to prevent downdrafts. A chimney with a small area will require a greater height to produce the necessary velocity of the gases than a chimney of somewhat larger area when the velocity of the gases are not as high. The *intensity* of draft should be distinguished from the *volume* of draft as the first may be considered as a *pressure* feature and the second as a *capacity* feature.

Hot Water—

(Continued from Page 79)

difference, it has become more or less customary to speak of the *height* of the column as the *circulation head*. Actually the tendency to circulate is measured by the difference in height which will make the two columns of equal weight. Any other temperature difference between the two columns would be calculated in the same manner but would, of course, show a different circulation head. As the temperature difference grows greater, the circulating head becomes greater; and as the temperature difference decreases, the circulating head also decreases.

With the foregoing facts in mind let the standard methods of piping domestic hot water circulation systems now be considered. In the first place if the simple diagram in Fig. 13 is considered, it will be seen that type of

heater is of little importance to circulation but its location is of greatest importance. When the water is heated, it follows the circulating route indicated by the arrows in Fig. 4. As a basis for all circulation it is necessary to have circulation head which in turn means *height above the heater.* No circulation will occur in a system in which the heater is located at the high point. Water may be circulated below the heater only if the height of the circulating system above the heater is approximately ten times as great as the height of the system below the heater. This practice should be resorted to only in very unusual situations where it is impossible to locate the heater at the low point of the system.

In Fig. 4 is shown the diagram given in Fig. 13 arranged for an actual installation so as to prevent air binding. It is necessary to provide an air vent at the highest point of a circulation system in order to permit the air, which separates from the water upon heating,

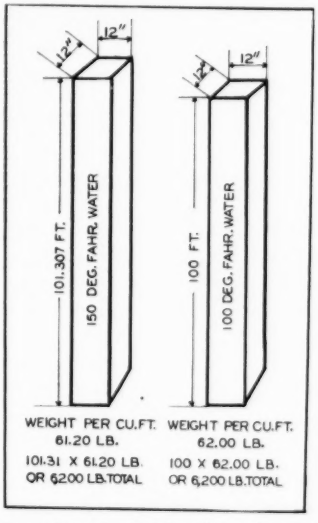


Fig. 14—This shows how the height of a column of heated water will be increased to equal the weight of the other column

to find a means of escape. If this is not done, air will collect in the horizontal lines at the top of the system and offer enough resistance to the circulation to impede, if not entirely stop, the water movement. All horizontal lines must be pitched toward this air relief although if several such reliefs are provided, the horizontal lines may be pitched so as to vent to the nearest or most desirable one.

In Fig. 3 this circulation scheme has been elaborated into what is termed the "overhead downfeed" system where all heated water is carried to the top of the building in one main riser and is there vented. From the top of this riser pitched distribution mains are run supplying downfeed drops at the various locations necessary to supply the fixtures. At the bottom the end of the drop is connected into a return circulation line as shown by dashes in the illustration, and this return circulation line is carried back to the heater. This system gives the best circulation results owing to the large supply riser with its low friction loss, but is somewhat more costly to install than the upfeed system.

The upfeed system shown in Fig. 7 has the main

WAYNE
WEATHER SELECTOR
Closet Fitting
OBI
YOU EARN
1 MORE PROFIT from smaller investment with the Wayne line.
2 ONLY ONE SIZE to carry in stock—cares for all domestic needs.
3 REPUTATION gained through years of dependable performance.
4 SALES OPPORTUNITIES developed by Wayne's continuous advertising. Write for dealer plan.
WAYNE OIL BURNER CORPORATION
FORT WAYNE, INDIANA ... EASTERN OFFICE, BROOKLYN, N. Y.

GERSTEIN & COOPER
TANKLESS WATER HEATER
for All Automatically Fired Systems
This Highly Efficient G & C Water Heater will deliver 360 gallons of hot water per hour. It is ruggedly constructed to give years of service without expense. Domestic Water Shell is heavy gauge copper, electrically welded and thoroughly insulated with mineral wool. Copper tubing is silver-brazed to bronze headers with no threaded or ground joints to leak. Jacket is lead-coated steel, attractively finished in Duco.
Available to the trade only through recognized distributors.
Write today for complete details about distributor franchise.
GERSTEIN & COOPER COMPANY
SO. BOSTON, Massachusetts

E-Z For Efficiency..Strength .. Durability .. Economy

E-Z RADIATOR HANGER

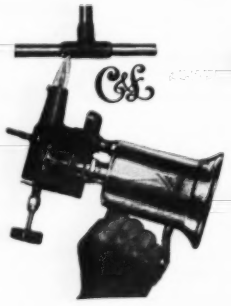
Orders shipped on date of receipt regardless of quantities. Used by leading architects, contractors and U. S. Government. Quick, easy installation. Adjustable horizontally and vertically.

E-Z SEVEN-IN-ONE CONCRETE INSERTS

Only one size is needed for all size pipe hangers, whether using pipe or rod. Easily adjustable with play for expansion.

• *Write for Details*

HEALY-RUFF COMPANY, 770 Hampden Ave., St. Paul, Minn.
Also Manufacturers of E-Z Lavatory Hangers



No. 99 MIDGET-FLAME TORCH

For Copper Tubing Work

PINT SIZE

For Close Quarters

CLAYTON & LAMBERT MFG. CO.—DETROIT

PARMELEE for PUSH NIPPLES *modern and obsolete*

Quick Service

When you want replacement Push Nipples quickly—think of Parmelee. Orders shipped the day received. Complete stock. Push Nipples to fit any style, type or size of cast iron radiation ever made in this country. *Exact fit guaranteed.* Send sample or sketch giving accurate dimensions. Rust-resistant finish if desired. Also boiler nipples.

PARMELEE MANUFACTURING CORP.
P. O. Box 28 Frankfort, New York

OIL BURNER HEATING

DOMESTIC ENGINEERING COMPANY
1900 PRAIRIE AVE. CHICAGO

THIS book which discusses oil burner heating problems from sale of job to operating installation is built upon direct questions asked by heating men. Testing problems worked out show what should be done to test efficiency of installation, how to compare cost of oil or gas heating, how to find heat losses, how combustion chambers are built, what to do when changing from gas installation to oil burner, how to figure oil consumption for year, etc. Can be used on practically any oil burner installation, and much of the information it contains applies also to gas burning boilers and to stokers. 184 pages. 5½x8¼, bound in cloth, price postpaid..... **$1.00**

supply pitched in the basement so as to have the high point at the far end where air venting is provided and vertical risers are taken off at the points necessary to feed the fixtures. From the top of each vertical riser *just below the top fixture connections* a small return circulation line is tapped out and is carried down to the basement where it is connected into a pitched return circulation main running back to the heater. In this arrangement the venting of the mains and risers is secured through the top fixture connections which are at the highest point on each riser. If the return circulation is taken from the top of the riser, a high point will be produced above the fixture outlet in which air will collect and the circulation will be stopped.

A modification of the upfeed system is shown in Fig. 5 in which the upfeed risers are carried over and run down in other locations to supply fixtures which otherwise would have an upfeed riser and it will be seen that by this arrangement considerable piping is eliminated although the upfeed riser must be increased sufficiently in size to carry not only the fixtures on its upfeed run

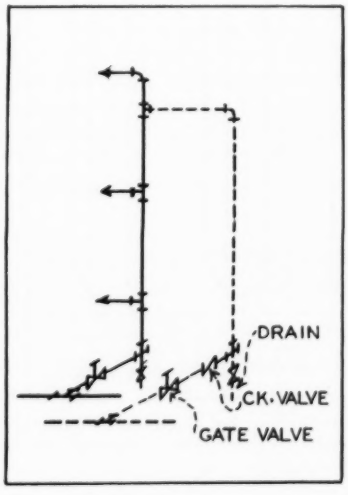


Fig. 15—When more than one riser is used, the return circulation should have a check valve before it joins the main, as shown

but also those located on the downfeed portion. A return circulation pipe, however, is required only from the end of the downfeed drop.

There are several methods of relieving air from the high points of the hot water circulating system, one of which is through the fixture outlets as already mentioned and shown in detail in Fig. 9. It sometimes happens that this is not a practical arrangement as, for example, in the case of the overhead downfeed system where the distribution main is in the attic. If a house tank is in use, a vent may be run up to and turned over the top of the tank in the manner shown in Fig. 6; if no house tank exists, then a special trap made for this purpose may be placed at the high point and the air allowed to collect in this trap. The lowering of the float will permit the escape of the excess air. See Fig. 8. Risers should be valved at the point where they connect to the main and, if more than one riser is used, the return circulation

also should have a check valve before it joins the main as shown in Fig. 15. When only one riser is involved in the circulating system, the check valve may be placed at the heater. The check should be one especially made for such use with a 60 degree flapper so as to add as little as possible to the friction of the circulating system. In case such a check valve is not readily obtainable, an ordinary 45 degree valve may be installed as shown in Fig. 10 so that the flapper will hang vertically and thus open with a minimum of resistance.

Instances often arise in which the circulation head is so low that poor circulation is obtained. Such circulation may be improved to some extent through the use of an injector Y for the cold water make-up. This Y has the cold water brought into the end of the Y through a pipe with a long thread screwed into the Y until it almost meets the intersection of the center line of the Y and the center line of the branch. The return circulation is brought into the branch connection of the Y, and the Y itself is made two pipe sizes larger than the return circulation which is bushed down as shown in Fig. 12. The result of the use of this fitting is that every time hot water is drawn off at any fixture, a corresponding amount of water enters through the cold water make-up and accelerates the circulation by the injector action.

In very stubborn cases of refusal to circulate it may be necessary to install a small circulator electrically operated. This is essential when the circulation head is very low or when water must be circulated below the level of the heater. A circulator of this type is placed in the return line and may be arranged to run all of the time or, by thermostatic control, to run only when the return has cooled down below 100 deg. Fahr. or some other predetermined temperature. See Fig. 11.

SIZING FOR CIRCULATION LINES

Pipe sizing for the circulation lines does not lend itself readily to engineering analysis owing to the fact that the sizing of the supply portion of the loop depends entirely on the fixtures to be supplied and has no relation to the circulation—in fact the size of the supply might be anything. It has been found, however, that if the circulation lines are made ¾ in., they will furnish sufficient movement for any size of supply riser and, possibly, this may be reduced to ½ in. where the supply riser is not over ¾ in. in size.

When connecting these into a return circulation main, the main size is increased in accordance with the combined areas of the returns connected thereto until it is one or two pipe sizes less than the main hot water supply line from the heater. Thus a 3 in. hot water line would have a main return not over 2½ in. or possibly 2 in., and a 1¼ in. hot water supply from the tank would take a 1 in. return circulation main. A system laid out on this basis with the lines properly pitched and air vented with all piping covered will give every satisfaction. Oversize return circulation lines simply mean better circulation will result while undersize circulation lines mean that the circulation will be slower and the water delivered to the fixtures will have had time to cool to a greater extent. Of course if the circulation is too slow, the purpose of the system will be defeated and the advantage over the one pipe system is lost.

"That Oil Burner Factory Service Expert SURE KNOWS HIS STUFF!"

"The first thing he asks me when he came in last spring, is 'Mike what are you using to seal your oil lines?'

"Anything out of a bucket that I can get my mitts on," I answer.

"'Well Mike,' he comes back, 'I won't ask you —I'll tell you—you're running a lot of emergency service calls on oil and air leaks in your lines that aren't necessary. You never have a leak in the burner assembly because we put that together with Key Graphite Paste. Now you just use it on all your installation jobs from now on and you'll cut out those emergency leak service calls.'

"This service expert is up in the bucks, and it's no wonder with advice like that to hand out. We switched to Key Graphite Paste and haven't had a leak call yet on any job put in this year. You can either take my word for it . . . or write the Key Company for a sample and they'll let you prove it for yourself."

Key Graphite Paste is "tops" for sealing oil lines, and for steam, acid, gas etc. Lubricates as it seals and expands under heat.

KEY

2651 McCasland Avenue East St. Louis, Ill.

TRY THIS THERMOMETER ON 15 DAY TRIAL

● Here is a reliable recording thermometer at a reasonable price. Only $18. Used by hundreds for heating and air conditioning installation and servicing. You must see it to appreciate its usefulness and exclusive features. Gives you dependable 24-hour temperature records. Completely portable. You need this thermometer. Get one now! Ask your jobber or write to us.

SEND FOR TRIAL OFFER: Mail this ad with your name to get illustrated folder on this reliable thermometer and our 15 Day Trial inspection offer.

PRACTICAL Recording Thermometer

Practical Instrument Company, 2717C No. Ashland, Chicago, Ill.

NO-SOL COPPER FLOATS

Quality Merchandise DOES MOST TO STIMULATE Consumer Confidence

5" Round Float

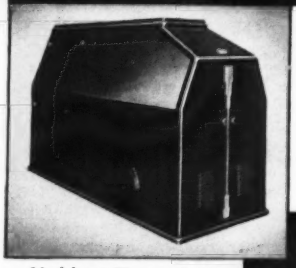
4"x5" Oval Float

Incorporated 1907

THE AYLING & REICHERT CO.

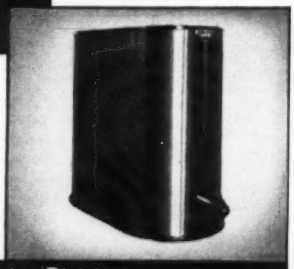
3047 N. ERIE ST. TOLEDO, OHIO

CUT INTO A BIGGER MARKET
WITH THESE 2 Gar Wood SALES LEADERS



Model 102 Tempered Aire

● Gar Wood, long-time manufacturer of Tempered-Aire, has responded to the demand for low-cost automatic heating and air conditioning for low-priced homes. Now, Gar Wood dealers are cutting into a rich new market with the model EW unit, the small but efficient companion of the larger Tempered-Aire units. Practically all the new residential and replacement business are logical for these two lines of equipment. In addition, Gar Wood has a complete line of boiler burner units, conversion oil burners, gas-fired units, domestic and commercial oil-fired water heaters and ventilators for home or business use. And wherever Gar Wood is installed, owners praise its economy and dependability. Investigate the many sales advantages of handling this pioneer line.



Model "EW" Unit

Air Conditioning Division
GAR WOOD INDUSTRIES, INC.
7924 RIOPELLE ST. DETROIT, MICHIGAN
Canadian Distributors: Engineering Industries, Ltd., Leaside, Ont.

The Rate You Pick is the Rate You Pay...

When you enter Hotel Sherman you give the orders. Any day or night, whatever price room you wish you may be sure will be assigned to you cheerfully – a sizeable, comfortable room and your own private bath. The entire staff has only one purpose ... pleasing you !!!

HOTEL SHERMAN
1700 ROOMS
1700 BATHS
HOME OF THE COLLEGE INN
FRANKIE MASTERS and the BIG APPLE REVUE
CHICAGO
YOU CAN DRIVE YOUR CAR RIGHT INTO HOTEL SHERMAN

Comparison — 1926

(Continued from Page 67, Col. 1)

3. The safety control was called a limit control. This was an immersion type instrument.

List price $20.00

(The limit control here listed is for use with a hot water heating system. For a steam or warm air system, a different type of limit control would be used. In either case the price comparison would be about the same as in the case of the hot water limit control listed above and in the opposite column.)

4. The oil valve used in the early days of the oil burner sold at the price noted below.

List price $18.00

List price—complete set $148.00

A comparison of the total list prices of these items with the corresponding items of 1937 given on page 173 opposite shows a net reduction from 1926 to 1937 of a little more than 36 per cent. It should be noted, in making this comparison, that discounts in 1937 are the same as in 1926.

5. The room thermostat consisted of an instrument which was equipped with a detachable eight day, hand wound clock, that provided for automatically lowering and raising the room temperature at any predetermined time. This thermostat was finished in silver, and occupied a wall space of 2¼ by 9¼ in.

List price $50.00

6. The damper motor was operated from line current through a transformer which was supplied with the unit. This damper motor was finished in black paint, and measured 8½ by 4½ by 6½ in. deep.

List price $40.00

7. The limit or safety control which completed the set was an immersion type instrument.

List price $20.00

(The limit control here listed is for use with a hot water heating system. For a steam or warm air system, a different type of limit control would be used. In either case the price comparison would be about the same as in the case of the hot water limit control listed above and in the opposite column.)

List price—complete set.....$110.00

1926 Swing Faucet

1. Underslung spout and top handles.

2. Suitable only for high back sinks.

3. China handles and china soap dish, subject to breakage.

4. Nickel plated finish, requiring constant attention to keep bright after installation.

5. **Cost to consumer, $8.50 net each.**

Comparison — 1937

(Continued from Page 67, Col. 2)

mounted and actually measures 5½ by 6 in., which is considerably less than the earlier relay. It is more positive in operation and performs all the functions previously performed by the two instruments.

List price $32.50

3. The limit control now recommended operates almost exactly like the immersion type, but is more readily installed.

List price $8.00

(An immersion type aquastat almost identical to the earlier model is still available. More modern in appearance, its list price is $11.00.)

4. The oil valve used today is of the silent solenoid type. This valve is greatly improved over the original model oil valve.

List price $13.00

List price—complete set.....$94.50

5. Today the comparable room thermostat is completely automatic, and is equipped with a self starting electric clock movement. Room temperatures may be automatically lowered and raised at any desired time, and an attachment is available for weekend shutdown. This is what is known as a "heat leveling" type of instrument. It is very modern in its appearance, has a silver finish, and requires a wall space of 3 by 8 in.

List price $41.00

6. The damper motor operates from line current through a transformer that is supplied. This motor is almost noiseless, is finished in bright red and black lacquer, and measures only 4¼ by 5¾ by 5¼ in. deep.

List price $19.50

7. The limit control now recommended operates almost exactly like the immersion type, but has the advantage of easier installation.

List price $8.00

(The immersion type aquastat is still available. It is almost identical to the earlier model, except that its appearance is more modern. However, it now carries a list price of $11.00.)

List price—complete set.....$68.50

Comparison of this total list price with the total for corresponding items on page 172 opposite shows a net reduction of better than 37 per cent from 1926 to the present. At the same time it should be noted that discounts remain the same as in 1926.

1937 Swing Faucet

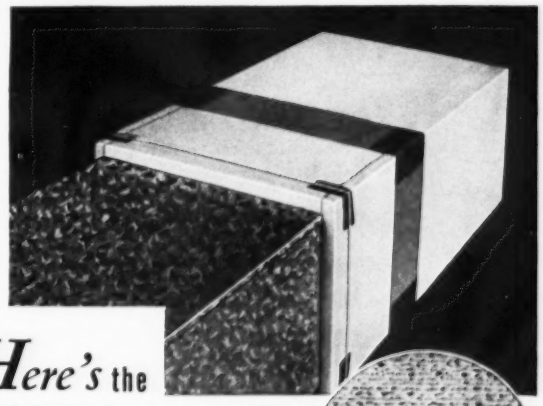
1. More massive and modern.

2. Suitable for use on high back or new low back sinks.

3. All-metal handles and all-metal soap dish.

4. Finished in enduring chromium plate.

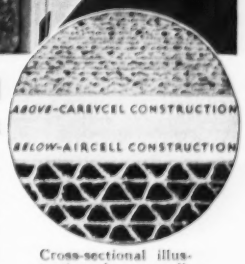
5. Labor costs are higher and features improved. **Cost to consumer, $6.00 net each.**



Here's the **PERFECT Insulation** *for* **Air Conditioning Ducts**

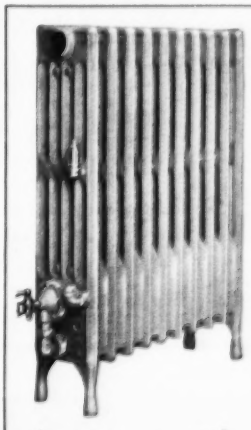
CAREYCEL not only keeps in the warm air in winter, but it also prevents the cold air from getting out in summer. It combines the low heat transmission of organic structures, such as cork or hair, with the fireproof qualities of Asbestos. Made in convenient size sheets, it is easy to fit and apply. Samples and complete details mailed upon request —address Dept. 18.

THE PHILIP CAREY COMPANY
LOCKLAND, CINCINNATI, OHIO
Branches in Principal Cities



Cross-sectional illustration shows smallness of air spaces in Careycel as compared with ordinary air-cell. This is the principal reason for its higher efficiency and is made possible by the exclusive Carey process of "cellizing" the asbestos sheets.

Careycel ASBESTOS **INSULATION**



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Sell LOW COST *Comfort!*

The demand of the present-day public is for greater COMFORT. The Automatic Gas Steam Radiator meets this demand in a most efficient manner. In addition, it gives you an opportunity to show your customers a means by which they can effect a substantial reduction in heating costs. Completely AUTOMATIC this radiator can be left burning indefinitely . . . the regulator controls the gas consumed as well as the steam pressure generated. Used separately in mild seasons and in conjunction with regular heating system in colder weather. Write TODAY for circular giving complete details.

AUTOMATIC GAS STEAM RADIATOR CO.
301 BRUSHTON AVENUE PITTSBURGH, PA.

We are also manufacturers of the Pittsburgh Gas-Fired Unit Heater.

. . . for tight joints!

It's different!

No stirring necessary, never hardens in joint, makes up easier, tighter and cooler. Suitable for steam, oil, water, gasoline, acid or alkali.

Order from your supply house.

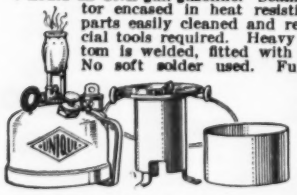
. . . USE **SULFLO** PIPE JOINT COMPOUND

SULFLO CORP. OF AMERICA
705 Spring St. Elizabeth, N. J.

SULFLO CUTTING OIL — SULFLO SOLDERING PASTE

Converts Furnace into Blowtorch in just 5 Seconds

Just Five Seconds! That's all it takes to convert the UNIQUE "Combination" from a furnace into a heavy duty blowtorch. Loosen three wing nuts, remove top structure, slip on extra handle, and in a flash you have a torch ideally suited to melt lead from soil pipe, for preheating and thawing. Can be used in ANY position. When used as a furnace it melts 20 lbs. solder in 7 min.; 40 lbs. in 10 min. Its finely controlled flame, 2 to 10 in. long, operates 4 to 6 hours on ONE gal. gasoline. Seamless steel generator encased in heat resisting casting. All parts easily cleaned and replaced. No special tools required. Heavy steel tank. Bottom is welded, fitted with shock ring. Fittings are brazed. No soft solder used. Funnel filler fitted with dust cap. *Write for further details today.*



UNIQUE MFG. CO., Inc.
Established 1921
221 W. WALTON STREET
CHICAGO, ILLINOIS, U. S. A.

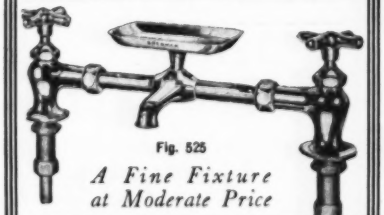


Fig. 525
A Fine Fixture at Moderate Price

DOUBLE *Lavatory* **FAUCET**

Chrome Plated—Renewable Seats—Adjustable Centers. High spout to comply with Back Siphonage Codes. Sold through Jobbers.

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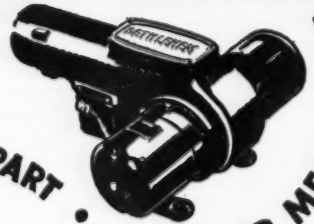
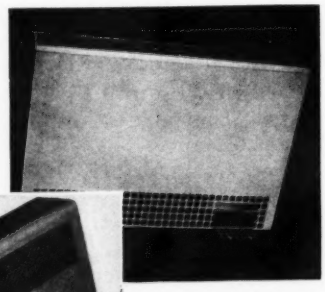


ONE MOVING PART • MONITOR MECHANISM

1937 Water Closet

1. Tank sets on bowl, concealing flush connection.
2. Tank cover serves as shelf.
3. Improved appearance with straight front.
4. Cost to consumer approximately $19.45.

At the right, a 1926 convector, rather bulky and cumbersome in appearance, a bargain by the standards of eleven years ago but higher in price than 1937 models



At the left, a typical convector of 1937, styled for the times, smaller, more efficient and less expensive than its 1926 counterpart

1926 Lavatory

1. Lavatory was constructed so as to be more difficult to clean.
2. Rounded rim and smaller basin.
3. Faucet design inferior to that of today.
4. Price to consumer approximately $29.00.

KLEEN TUBE *Cleanable* **WATER HEATERS**

ADAMS ENGINEERING CO., Inc.
2607 Wentworth Avenue CHICAGO

1926 Water Closet

1. Tank and bowl separate with exposed flush connection.
2. Round tank cover.
3. Hump shaped tank front.
4. **Cost to consumer approximately $25.15.**

A modern water closet —a greater value by all standards than models manufactured in 1926 and today sold at a much lower price

At the left is a 1926 water closet, its separate tank and bowl with exposed flush connections, round tank cover making it outdated by standards of today

1937 Lavatory

1. Easy-to-clean design.
2. Square rim with large, rectangular basin.
3. Improved faucets with renewable operating units and seats.
4. **Price to consumer approximately $24.80.**

ALWAYS DANDY FACTORY FRESH!

DANDY TANK BALLS

Sealed at the POINT OF MANUFACTURE in their air-tight containers, DANDY Tank Balls are always FACTORY FRESH at the POINT OF SALE. A tank ball of high quality the DANDY resists alkali . . . does not swell . . . adapts its soft seat to all types of valves. Displayed in this attractive counter carton the DANDY will help to sell itself. Avail yourself of the extra profits the DANDY will bring you. Order a supply from your wholesaler . . . today.

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SCOTT NEWCOMB

THE LINE THAT *has everything!*

Scott-Newcomb dealers are making money because S/N has a product for every month of the year—and the Scott-Newcomb line of automatic heating and air conditioning equipment means HIGHEST QUALITY and a well known name at competitive prices.

Scott-Newcomb manufactures the following equipment:

Air Conditioners (Oil, Gas, Stoker)
Boilers, Cast Iron, Steel (Oil, Gas, Stoker)
Oil Burners (8 sizes)
Water Heaters (Oil, Gas, Stoker)
Room Coolers and Central Cooling Units
Stokers (5 Sizes for Hard and Soft Coal)
Water Softeners (All Sizes)

Your territory may be open for the popular S/N line. Write today for literature and interesting dealer offer.

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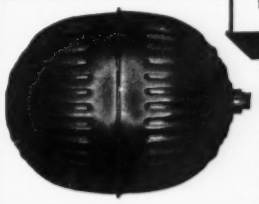
Where the Best Is Used They Specify Reichert

The patented seam and spud construction makes Reichert Solderless Heavy Gauge Sheet Copper Floats the strongest on the market. Thoroughly inspected, tested and guaranteed leak-proof. Write for folders on the entire line of floats and rubber tank balls.



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PAINE

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THE PAINE COMPANY
2949 Carroll Avenue, CHICAGO

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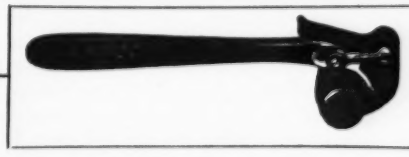

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For chrome, brass and nickel plated pipe

WARNOCK MFG. CO., Worcester, Mass.

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All That is Best

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SPLENDID OPPORTUNITY FOR RELIABLE MAN, WELL KNOWN TO PLUMBING SUPPLY JOBBERS IN NORTHERN NEW JERSEY, TO REPRESENT LONG ESTABLISHED MANUFACTURERS AGENT, CARRYING MAJOR LINES WITH NEW JERSEY WAREHOUSE. STATE LOWEST SALARY TO START, EXPERIENCE AND IF OWNER OF CAR. ADDRESS KEY 445-D, "DOMESTIC ENGINEERING," 1900 PRAIRIE AVENUE, CHICAGO, ILLINOIS.

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Sales promotion and executive position desired with heating manufacturer or distributor. Over twenty highly successful years of selling and contracting experience. Have definite, proven ideas on promotion of radiator heat. Fluent speaker with ability to direct and impart my knowledge and experience to others. Positive results assured. Address Key 443D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

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Young man, now managing heating and air conditioning department handling more than $40,000 annual business, desires to make connection with plumbing or heating contractor. Children require more healthful climate. Graduate engineer with thorough training in large heating, air conditioning and industrial work. If conditions warrant will consider buying an interest in firm. Address Key 441-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

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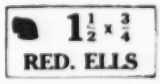

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We pay highest market prices. Write for price sheet and shipping instructions.

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St. Louis, Mo.

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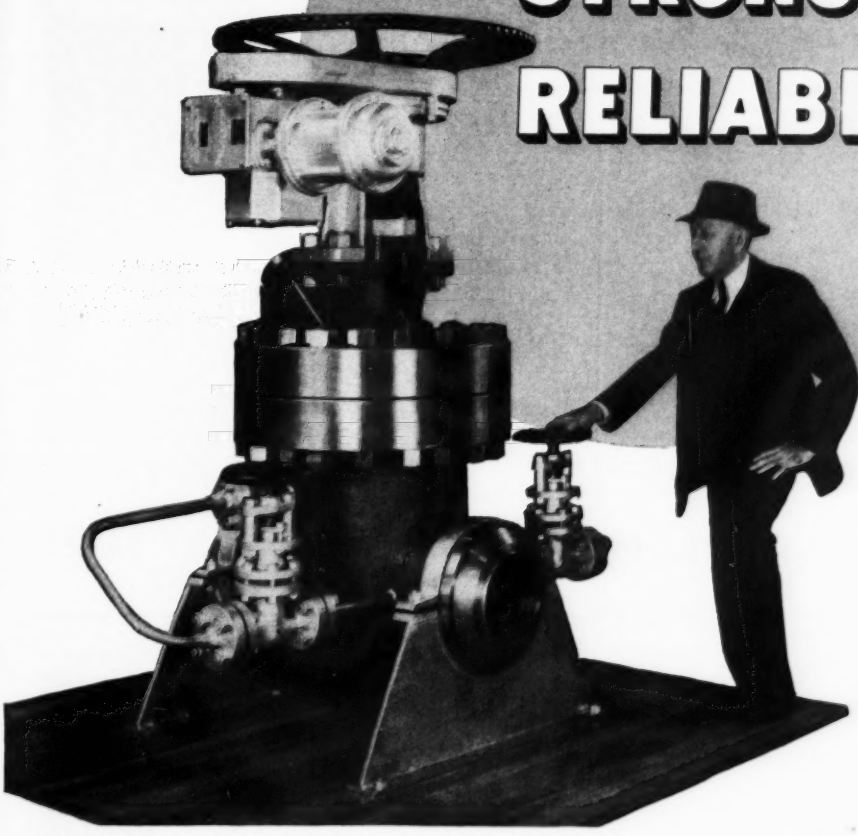

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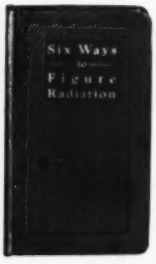

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